

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.11.95
Test oil : ISO 4113

Combination No. : 0 402 046 872

Injection pump
Pump designation : PES6P120A32ORS3337
EP type number : 0 412 026 770

Governor
Governor design. : RQV300...1250PA1246K
Governor no. : 0 421 815 480

Cust. part No. : CCEP 5155 66-217

Customer-spec. information
Customer : RVI
Motor : MIDR 06-02-26 U4
Power kW : 111.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5
Tolerance bar : +- 0.1

Overflow quantity
min. l/h : 135
Tolerance l/h : +- 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

A01

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 4.10
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 11.00
Tolerance mm : +- 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.30
Check
tolerance °NW : +- 0.50

Start of delivery mark
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.80
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 145.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -6.00
Tolerance mm : +- 0.20

Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : +- 0.20

Rated speed rpm : 1333
guide sleeve
travel mm : 10.40
Tolerance mm : +- 0.15

Rated speed rpm : 900
guide sleeve
travel mm : 6.50
Tolerance mm : +- 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 3.77
Tolerance mm : +- 0.25

Rated speed rpm : 1580

A02

guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1325
Tolerance 1/min : +- 5

rack travel mm : -6.80
Rated speed rpm : 1420
Tolerance 1/min : +- 15

rack travel mm : -10.30
Tolerance mm : +- 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 242.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -6.00
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : < -5.00

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 750
rack travel mm : -1.60
Tolerance mm : + 0.10

Rated speed rpm : 650
rack travel mm : -1.90
Tolerance mm : + 0.15

Rated speed rpm : 400
rack travel mm : -2.50
Tolerance mm : + 0.20

START CUT-OUT

Rated speed rpm : > 130
Rated speed rpm : < 225

Check speed 1/min : > 110
Check speed 1/min : < 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -
Rated speed rpm : 750
Del. quantity cm3/1000 strokes : 107.0
Tolerance cm3/1000 strokes : + 3.0
Check tolerance cm3/1000S. : + 6.0

Aneroid pressure hPa : -
Rated speed rpm : 650
Del. quantity cm3/1000 strokes : 94.0

A03

Tolerance cm3/1000 strokes : + 3.0
Check tolerance cm3/1000S. : + 6.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1325
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm3/1000 strokes : 112.0
Tolerance cm3/1000 strokes : + 15.0
Check tolerance cm3/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -6.00
Tolerance mm : + 0.20
Del. quantity cm3/1000 strokes : 29.0
Tolerance cm3/1000 strokes : + 2.0
Check tolerance cm3/1000S. : + 5.0
Spreed Tolerance cm3/1000 strokes : 8.0
Check tolerance cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.11.95
Test oil : ISO 4113
Combination No. : 0 402 048 705
Injection pump
Pump designation : PES8P120A32ORS3199
EP type number : 0 412 028 705
Governor
Governor design. : RQV275...1050PA665
Governor no. : 0 421 813 370

Cust. part No. :

Customer-spec. information
Customer : RVI
Motor : MIVR083530
Power KW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 019
Opening pressure bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 3.55
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 8- 4- 2- 7
 : - 3- 6- 5
Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : +- 0.30
Check tolerance °NW : +- 0.50
Start of delivery mark
°NW after s.o.d. : 13.00
Tolerance : +- 0.50
Check tolerance °NW : +- 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 11.45
Tolerance mm : +- 0.05
Del. quantity cm³/1000 strokes : 203.0

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Tolerance	
cm3/1000 strokes	: ± 1.0
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Check tolerance	
cm3/1000S.	: ± 4.0
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Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
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Check tolerance	
cm3/1000S.	: 9.0
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Rated speed rpm	: 275
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Rack travel in mm	: -7.50
Tolerance mm	: ± 0.20
Del. quantity	
cm3/1000 strokes	: 20.0
Tolerance	
cm3/1000 strokes	: ± 3.0
Check tolerance	
cm3/1000S.	: ± 6.0
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 0.89
Tolerance mm	: ± 0.20
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Rated speed rpm	: 1135
guide sleeve	
travel mm	: 8.32
Tolerance mm	: ± 0.15
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Rated speed rpm	: 781
guide sleeve	
travel mm	: 5.68
Tolerance mm	: ± 0.25
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Rated speed rpm	: 480
guide sleeve	
travel mm	: 3.60
Tolerance mm	: ± 0.25
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Rated speed rpm	: 1430
guide sleeve	
travel mm	: 11.50

A05

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1250
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Rack travel in mm	: 10.45
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 700
Del. quantity	
cm3/1000 strokes	: 203.0
Tolerance	
cm3/1000 strokes	: ± 1.0
Check tolerance	
cm3/1000S.	: ± 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 65.0
tolerance degree	: ± 4.0
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control lever	
position degree	: 300.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1120
Tolerance 1/min	: ± 5
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rack travel mm	: -7.45
Rated speed rpm	: 1225
Tolerance 1/min	: ± 15
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rack travel mm	: -10.95
Tolerance mm	: ± 0.50
Rated speed rpm	: 1350

LOW IDLE

control lever
position degree : 245.0
tolerance degree : ± 4.0

control lever
position degree : 10.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -7.50
Tolerance mm : ± 0.10

Rated speed rpm : 200
CRT mm max. : < -5.80

Rated speed rpm : 343

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 650

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -2.60
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 360
rack travel mm : -1.90
Tolerance mm : ± 0.10

Pressure hPa : 420
rack travel mm : -0.75
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 195

A06

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 192.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000s. : ± 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 111.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1120
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -7.50
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.95
Test oil : ISO 4113

Combination No. : 0 402 076 758

Injection pump
Pump designation : PES6P120A72ORS3322
EP type number : 0 412 026 764

Governor
Governor design. : RSV650...1250P8A566
Governor no. : 0 421 833 415

Cust. part No. :

Customer-spec. information
Customer : FNH-GEOTECH
Power KW : 164.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

A08

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 131.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.40
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 1.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 131.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : + 4.0

RATED SPEED

Rated speed rpm : 1330

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1293
rack travel mm : 9.05

Rated speed rpm : 1325
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1500

Rated speed rpm : 1294
rack travel mm : 9.05

Rated speed rpm : 1326
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1295
rack travel mm : 9.05

Rated speed rpm : 1327
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1296
rack travel mm : 9.05

Rated speed rpm : 1328
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1297
rack travel mm : 9.05

Rated speed rpm : 1329
Tolerance 1/min : + 5

rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1298
 rack travel mm : 9.05
 Rated speed rpm : 1330
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : ± 0.55

LOW IDLE

control lever
 position degree : 85.0
 tolerance degree : ± 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 650
 rack travel mm : 3.90

Testing:

Rated speed rpm : 650
 rack travel mm : 4.40
 Tolerance mm : ± 0.10
 rack travel mm : 2.00
 Rated speed rpm : 770
 Tolerance 1/min : ± 50

TORQUE CONTROL

Rated speed rpm : 1250
 rack travel mm : 10.05
 Tolerance mm : ± 0.05
 Rated speed rpm : 900
 rack travel mm : 10.60
 Tolerance mm : ± 0.10
 Rated speed rpm : 1160
 rack travel mm : 10.35
 Tolerance mm : ± 0.10
 Rated speed rpm : 700
 rack travel mm : 10.60
 Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1000
 rack travel mm : 10.60
 Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : 7.60
 Tolerance mm : ± 0.10
 Rated speed rpm : 500
 Pressure hPa : 560
 rack travel mm : 9.80
 Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
 Check
 speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1000
 Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : 144.5
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 83.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 650
rack travel mm : 4.40
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.11.95
Test oil : ISO 4113
Combination No. : 0 402 648 795
Injection pump
Pump designation : PE8P120A320LS7873
EP type number : 0 412 628 880
Governor
Governor design. : RQV300...1050PA1258K
Governor no. : 0 421 815 490
Cust. part No. : 04223330KY0165-17

Customer-spec. information
Customer : KHD
Motor : BF8M1015/C
Power KW : 400.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Overflow quantity
min. l/h : 115
Tolerance l/h : ± 10.0
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 8- 7- 2- 6
 : - 5- 4- 3
Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 14.70
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 360.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.80
Tolerance mm : +- 0.20

Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.60
Tolerance mm : +- 0.20

Rated speed rpm : 1097
guide sleeve
travel mm : 10.07
Tolerance mm : +- 0.15

Rated speed rpm : 796
guide sleeve
travel mm : 6.87
Tolerance mm : +- 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 4.02
Tolerance mm : +- 0.25

Rated speed rpm : 1340

guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1175

Rack travel in mm : 13.70
Tolerance mm : +- 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 360.0
Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.70
Rated speed rpm : 1085
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 71.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.80
Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm max. : > 6.30

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.70
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 14.00
Tolerance mm : ± 0.25

Rated speed rpm : 600
rack travel mm : 12.70
Tolerance mm : ± 0.25

Rated speed rpm : 450
rack travel mm : 11.40
Tolerance mm : ± 0.25

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1000
rack travel mm : 14.70
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 8.90
Tolerance mm : ± 0.20

Rated speed rpm : 1050

Pressure hPa : 500
rack travel mm : 11.95
Tolerance mm : ± 0.10

Pressure hPa : 800
rack travel mm : 14.10
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.70
Rated speed rpm : 1085
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.90
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 4.80
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.11.95
Test oil : ISO 4113
Combination No. : 0 402 744 804
Injection pump
Pump designation : PES4P120A32ORS7402
EP type number : 0 412 724 804
Governor
Governor design. : RQV275...1200PA1257K
Governor no. : 0 421 815 494

Cust. part No. : CCEP 5154 66-238

Customer-spec. information
Customer : RVI
Motor : MIDR 04-02-26 A4
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 071
Inlet press. bar : 2.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 245.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
 cm³/1000S. : ± 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -8.40
 Tolerance mm : ± 0.20
 Del. quantity
 cm³/1000 strokes : 28.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
 guide sleeve
 travel mm : 1.52
 Tolerance mm : ± 0.20

Rated speed rpm : 1260
 guide sleeve
 travel mm : 10.32
 Tolerance mm : ± 0.15

Rated speed rpm : 938
 guide sleeve
 travel mm : 6.86
 Tolerance mm : ± 0.25

Rated speed rpm : 550
 guide sleeve
 travel mm : 3.92
 Tolerance mm : ± 0.25

Rated speed rpm : 1650
 guide sleeve
 travel mm : 13.50
 Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1450
 Rack travel in mm : 12.10
 Tolerance mm : ± 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 245.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 298.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : -1.00
 Rated speed rpm : 1260
 Tolerance 1/min : ± 5

rack travel mm : -9.10
 Rated speed rpm : 1410
 Tolerance 1/min : ± 15

rack travel mm : -12.60
 Tolerance mm : ± 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 252.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 325
 rack travel mm : -8.40
 Tolerance mm : ± 0.10

Rated speed rpm : 225
CRT mm min. : < 6.90
Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1200
Rated speed rpm : 850
rack travel mm : -1.05
Tolerance mm : ± 0.10
Rated speed rpm : 700
rack travel mm : -1.85
Tolerance mm : ± 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1200
rack travel mm : -2.70
Tolerance mm : ± 0.20

Rated speed rpm : 1200

Pressure hPa : 200
rack travel mm : -2.00
Tolerance mm : ± 0.20

Pressure hPa : 440
rack travel mm : -0.70
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 130
Rated speed rpm : < 275

Check
speed 1/min : > 110
Check
speed 1/min : < 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1260
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 325
rack travel mm : -8.40
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.11.95
Test oil : ISO 4113
Combination No. : 0 402 746 603

Injection pump
Pump designation : PES6P120A320RS7359
EP type number : 0 412 726 925

Governor
Governor design. : RQ300/1050PA999-7
Governor no. : 0 421 801 799

Cust. part No. : CCEP 5153 66-224

Customer-spec. information

Customer : RVI
Motor : MIHRO62045 A41
Power KW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder assembly : 1 688 901 101

Opening pressure bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.70
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 20.25
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check tolerance °NW : + 0.50

Start of delivery mark

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.30
Tolerance mm : + 0.05
Tolerance mm : + 0.05

Del. quantity cm³/1000 strokes : 191.0

Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spreed
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 275
 Rack travel in mm : -6.10
 Tolerance mm : + 0.20
 Del. quantity
 cm³/1000 strokes : 34.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
 guide sleeve
 travel mm : 1.75
 Tolerance mm : + 0.20

 Rated speed rpm : 1145
 guide sleeve
 travel mm : 6.55
 Tolerance mm : + 0.15

 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

 Rated speed rpm : 594
 guide sleeve
 travel mm : 5.11
 Tolerance mm : + 0.10

 Rated speed rpm : 720
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1380
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 191.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 276.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
 Rated speed rpm : 1138
 Tolerance 1/min : + 5

 rack travel mm : -8.30
 Rated speed rpm : 1265
 Tolerance 1/min : + 15

 rack travel mm : -11.80
 Tolerance mm : + 0.50
 Rated speed rpm : 1375

LOW IDLE

control lever
position degree : 255.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -6.10
Tolerance mm : + 0.10

rack travel mm : -10.30
Rated speed rpm : 520
Tolerance 1/min : + 20

Rated speed rpm : 175

CRT mm min. : > -4.20

TORQUE CONTROL

Rated speed rpm : 600
Tolerance mm : + 0.05

Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -1.10
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 140
rack travel mm : -0.65
Tolerance mm : + 0.15

Pressure hPa : 200
rack travel mm : -0.25
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 156.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1138
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -6.10
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 34.0

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.11.95
Test oil : ISO 4113

Combination No. : 0 402 746 953

Injection pump
Pump designation : PES6P120A32ORS7294
EP type number : 0 412 726 895

Governor
Governor design. : RQV275...1000PA1001
: -1
Governor no. : 0 421 813 936

Cust. part No. : CCEP-5135 66-213

Customer-spec. information

Customer : RVI
Motor : MIDR 063540 J/3
Power kW : 306.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.70

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes	: 312.0
<hr/>	
Tolerance	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 4.0
<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: -8.60
Tolerance mm	: ± 0.20
Del. quantity	
cm ³ /1000 strokes	: 31.0
Tolerance	
cm ³ /1000 strokes	: ± 2.0
Check tolerance	
cm ³ /1000S.	: ± 6.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.29
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 1086
guide sleeve	
travel mm	: 8.46
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 773
guide sleeve	
travel mm	: 6.09
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 343
guide sleeve	
travel mm	: 2.33
Tolerance mm	: ± 0.20

Rated speed rpm	: 393
guide sleeve	
travel mm	: 2.99
Tolerance mm	: ± 0.20

Rated speed rpm	: 490
guide sleeve	
travel mm	: 3.81
Tolerance mm	: ± 0.20

Rated speed rpm	: 1370
guide sleeve	
travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1185
<hr/>	
Rack travel in mm	: 12.60
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm ³ /1000 strokes	: 312.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 302.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1080
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: -9.70
Rated speed rpm	: 1220
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: -13.25

Tolerance mm : \pm 0.55
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 246.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -8.60
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : $<$ -7.20

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1000
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : -5.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -5.00
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 240
rack travel mm : -3.80
Tolerance mm : \pm 0.20

Pressure hPa : 600

rack travel mm : -0.95
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 289.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000s. : \pm 8.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 152.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1080
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -8.60
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.11.95
Test oil : ISO 4113
Combination No. : 0 402 996 307
Injection pump
Pump designation : PES6P120A720RS8512
 : -2
EP type number : 0 412 926 212
Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : CCEP 5156 66-242

Customer-spec. information
Customer : RVI
Motor : 062465A42B42C42

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : +- 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 4.20

Prestroke mm : 4.20
Tolerance mm : +- 0.05
Tolerance mm : +- 0.05

Check
tolerance mm : +- 0.10
Check
tolerance mm : +- 0.10

Rack travel in mm : 12.00

Rack travel in mm : 12.00
Tolerance mm : +- 0.20
Tolerance mm : +- 0.20

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : +- 0.30
Check
tolerance °NW : +- 0.50

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm³/1000 strokes : 392.0
Tolerance
cm³/1000 strokes : +/- 10.0
Check tolerance
cm³/1000S. : +/- 12.0
Spread
Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.310

Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.070
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 strokes : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : +- 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm3/1000 strokes : 195.0
Tolerance
cm3/1000 strokes : +- 19.0
Check tolerance
cm3/1000S. : +- 22.0
Spreed
Tolerance
cm3/1000 strokes : 40.0
Check tolerance
cm3/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.11.95
Test oil : ISO 4113
Combination No. : 0 403 246 054
Injection pump
Pump designation : PES6MW100/720RS1526
EP type number : 0 413 206 025
Governor
Governor design. : RQV300...1300MW154
Governor no. : 0 420 083 341
Cust. part No. : 0260748702

Customer-spec. information
Customer : MB-NFZ
Motor : OM366LA
Power kW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.00
Tolerance mm : ± 1.00
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 11.90
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 98.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 4.00
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.01
Tolerance mm : ± 0.20

Rated speed rpm : 1352
guide sleeve
travel mm : 6.10
Tolerance mm : ± 0.15

Rated speed rpm : 1140
guide sleeve
travel mm : 4.84
Tolerance mm : ± 0.25

Rated speed rpm : 740
guide sleeve
travel mm : 3.23
Tolerance mm : ± 0.25

Rated speed rpm : 1800
guide sleeve
travel mm : 12.00
Tolerance mm : ± 0.25

Rated speed rpm : 1910
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1445

Rack travel in mm : 10.00
Tolerance mm : ± 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 98.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.90
Rated speed rpm : 1345
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1500
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.00
Tolerance mm : ± 0.10

Rated speed rpm : 200
CRT mm min. : > 4.50

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.90
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 11.90
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 11.90
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : 350
rack travel mm : 1.30
Tolerance mm : + 0.10

Pressure hPa : 250
rack travel mm : 0.65
Tolerance mm : + 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check speed 1/min : > 80
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
Rated speed rpm : 750

Del. quantity cm³/1000 strokes : 96.0
Tolerance cm³/1000 strokes : + 1.5
Check tolerance cm³/1000S. : + 4.0
Speed
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 7.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 61.0
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 3.0

BREAKAWAY

Rack travel in mm : 10.90
Rated speed rpm : 1345
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 125.0
Tolerance cm³/1000 strokes : + 5.0
Check tolerance cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 4.00
Tolerance mm : + 0.20
Del. quantity cm³/1000 strokes : 12.0
Tolerance cm³/1000 strokes : + 2.0
Check tolerance cm³/1000S. : + 4.5
Speed
Tolerance cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 5.5

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.05.95
Test oil : ISO 4113
Combination No. : 0 402 646 602

Injection pump
Pump designation : PE6P120A72DRS7264
EP type number : G 412 626 874

Governor
Governor design. : RQ750PA758-14
Governor no. : 0 421 801 659

Cust. part No. : 1337552

Customer-spec. information
Customer : SCANIA
Motor : D 11

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 104

Opening pressure bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.15
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 276.0

Tolerance
 cm³/1000 strokes : + 1.0

Check tolerance
 cm³/1000S. : + 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 8.0

Check tolerance
 cm³/1000S. : 12.0

Rack travel in mm : 5.50
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 strokes : + 4.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 276.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

CONTROL LEVER

control lever
 position degree : 29.0
 tolerance degree : + 4.0

control lever
 position degree : 90.0
 tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750
 rack travel mm : 13.10

Rated speed rpm : 794
 Tolerance 1/min : + 4
 rack travel mm : 4.00

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 850

Rated speed rpm : 751
 rack travel mm : 13.10

Rated speed rpm : 795
 Tolerance 1/min : + 4
 rack travel mm : 4.00

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 850

Rated speed rpm : 752
 rack travel mm : 13.10

Rated speed rpm : 796
 Tolerance 1/min : + 4
 rack travel mm : 4.00

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 850

Rated speed rpm : 753
 rack travel mm : 13.10

Rated speed rpm : 797
 Tolerance 1/min : + 4
 rack travel mm : 4.00

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 850

Rated speed rpm : 754
 rack travel mm : 13.10

Rated speed rpm : 798
 Tolerance 1/min : + 4
 rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : + 0.50
Rated speed rpm : 850

Rated speed rpm : 755
rack travel mm : 13.10

Rated speed rpm : 799
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : + 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 14.15
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.00
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 210
rack travel mm : 11.90
Tolerance mm : + 0.20

Pressure hPa : 440
rack travel mm : 13.45
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.40
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 24.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.10.95
Test oil : ISO 4113
Combination No. : 0 402 646 665
Injection pump
Pump designation : PE6P130A72DRS7354
EP type number : 0 412 636 835
Governor
Governor design. : RQV300...950PA1002
: -3K
Governor no. : 0 421 815 491
Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8210.42K.3000

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 076
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 12.00
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Check
tolerance °NW : ± 0.40
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950
Rack travel in mm : 12.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 244.0
Tolerance
cm³/1000 strokes : ± 1.0

<hr/>	
Check tolerance	
cm ³ /1000S.	: +- 4.0
<hr/>	
Spread	
Tolerance	
cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 4.80
Tolerance mm	: +- 0.20
Del. quantity	
cm ³ /1000 strokes	: 22.0
Tolerance	
cm ³ /1000 strokes	: +- 3.0
Check tolerance	
cm ³ /1000S.	: +- 6.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.64
Tolerance mm	: +- 0.20
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Rated speed rpm	: 1025
guide sleeve	
travel mm	: 9.00
Tolerance mm	: +- 0.15
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Rated speed rpm	: 764
guide sleeve	
travel mm	: 6.22
Tolerance mm	: +- 0.25
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Rated speed rpm	: 500
guide sleeve	
travel mm	: 3.78
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 1330
guide sleeve	
travel mm	: 13.50
Tolerance mm	: +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1200
<hr/>	
Rack travel in mm	: 11.00
Tolerance mm	: +- 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 950
Aneroid pressure	
hPa	: 900
Del. quantity	
cm ³ /1000 strokes	: 244.0
Tolerance	
cm ³ /1000 strokes	: +- 1.0
Check tolerance	
cm ³ /1000S.	: +- 4.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 114.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 11.00
Rated speed rpm	: 1015
Tolerance 1/min	: +- 5
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rack travel mm	: 4.00
Rated speed rpm	: 1015
Tolerance 1/min	: +- 15
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rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1250

LOW IDLE

control lever	
position degree	: 71.0
tolerance degree	: +- 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.80
Tolerance mm : ± 0.10

Rated speed rpm : 200
CRT mm min. : > 6.30

Rated speed rpm : 355

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 12.05
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : ± 0.10

Rated speed rpm : 550
rack travel mm : 11.50
Tolerance mm : ± 0.10

Rated speed rpm : 300
rack travel mm : 10.90
Tolerance mm : ± 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 950
Pressure hPa : 900
rack travel mm : 12.05
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 950
rack travel mm : 8.50
Tolerance mm : ± 0.20

Rated speed rpm : 950

Pressure hPa : 290
rack travel mm : 9.35
Tolerance mm : ± 0.20

Pressure hPa : 500
rack travel mm : 11.10
Tolerance mm : ± 0.05

START CUT-OUT

B12

Rated speed rpm : > 180
Rated speed rpm : < 220

Check
speed 1/min : > 200
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 264.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 174.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1015
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : ± 0.75
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : 4.80
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.12.95
Test oil : ISO 4113
Combination No. : 0 402 648 602
Injection pump
Pump designation : PE8P110A320RS7398
EP type number : 0 412 618 800
Governor
Governor design. : RQV300...900PA1252K
Governor no. : 0 421 815 484

Cust. part No. :

Customer-spec. information
Customer : TATRA
Motor : T3B-928.60
Power KW : 255.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 13.00
Tolerance mm : ± 1.00
Firing order : 1- 8- 5- 4- 7
 : - 2- 3- 6

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900
Rack travel in mm : 14.00
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 191.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

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Speed	
Tolerance	
cm ³ /1000 strokes :	5.0
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Check tolerance	
cm ³ /1000S.	: 9.0
Rated speed rpm :	250
Rack travel in mm :	5.20
Tolerance mm :	+ 0.30
Del. quantity	
cm ³ /1000 strokes :	17.0
Tolerance	
cm ³ /1000 strokes :	+ 3.0
Check tolerance	
cm ³ /1000S.	: + 6.0
Speed	
Tolerance	
cm ³ /1000 strokes :	8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	300
guide sleeve	
travel mm :	1.63
Tolerance mm :	+ 0.20
<hr/>	
Rated speed rpm :	958
guide sleeve	
travel mm :	8.79
Tolerance mm :	+ 0.15
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Rated speed rpm :	777
guide sleeve	
travel mm :	6.70
Tolerance mm :	+ 0.25
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Rated speed rpm :	520
guide sleeve	
travel mm :	3.73
Tolerance mm :	+ 0.25
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Rated speed rpm :	1260
guide sleeve	
travel mm :	13.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	1115
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Rack travel in mm :	13.00
Tolerance mm :	+ 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	900
Aneroid pressure	
hPa :	1500
Del. quantity	
cm ³ /1000 strokes :	191.0
Tolerance	
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S.	: + 4.0
Speed	
Tolerance	
cm ³ /1000 strokes :	5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree :	65.0
tolerance degree :	+ 4.0

control lever	
position degree :	119.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	13.00
Rated speed rpm :	945
Tolerance 1/min :	+ 5

rack travel mm :	4.00
Rated speed rpm :	1065
Tolerance 1/min :	+ 15

rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1150

LOW IDLE

control lever	
position degree :	70.0
tolerance degree :	+ 4.0

control lever	
position degree :	16.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.20
Tolerance mm : ± 0.10

Rated speed rpm : 150

CRT mm min. : > 6.00

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 14.00
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 13.10
Tolerance mm : ± 0.10

Rated speed rpm : 300
rack travel mm : 12.60
Tolerance mm : ± 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1500
rack travel mm : 14.00
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 900
rack travel mm : 9.05
Tolerance mm : ± 0.20

Rated speed rpm : 900

Pressure hPa : 375
rack travel mm : 10.15
Tolerance mm : ± 0.15

Pressure hPa : 750
rack travel mm : 12.75
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 170

Check
speed 1/min : > 80
Check
speed 1/min : < 190

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.00
Rated speed rpm : 945
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 255.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 250
rack travel mm : 5.20

Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.12.95
Test oil : ISO 4113

Combination No. : 0 402 848 300

Injection pump
Pump designation : PE8P120A520LS8518
EP type number : 0 412 828 201

Governor
Governor design. : RQV300...1150PA1039
 : -3K
Governor no. : 0 421 815 980

Cust. part No. : 51.11103-7492

Customer-spec. information
Customer : MAN
Motor : D 2848 LE 403
Power kW : 588.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 170
Tolerance l/h : + 15.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery blocking
Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.70
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 337.0

<hr/>	
Tolerance	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 4.0
<hr/>	
Spread	
Tolerance	
cm ³ /1000 strokes	: 8.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 12.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 5.00
Tolerance mm	: ± 0.20
Del. quantity	
cm ³ /1000 strokes	: 49.0
Tolerance	
cm ³ /1000 strokes	: ± 3.0
Check tolerance	
cm ³ /1000S.	: ± 8.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.61
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1206
guide sleeve	
travel mm	: 9.84
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 797
guide sleeve	
travel mm	: 6.36
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 460
guide sleeve	
travel mm	: 3.78
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1500
guide sleeve	
travel mm	: 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1327
<hr/>	
Rack travel in mm	: 12.70
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure	
hPa	: 2000
Del. quantity	
cm ³ /1000 strokes	: 337.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

CONTROL LEVER

control lever	
position degree	: 118.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.70
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1325
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1400

LOW IDLE

control lever	
position degree	: 71.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : ± 0.10

Rated speed rpm : 200
CRT mm min. : > 6.90

Rated speed rpm : 340

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.70
Tolerance mm : ± 0.05

Rated speed rpm : 1000
rack travel mm : 13.65
Tolerance mm : ± 0.10

Rated speed rpm : 850
rack travel mm : 12.60
Tolerance mm : ± 0.10

Rated speed rpm : 650
rack travel mm : 11.40
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 2000
rack travel mm : 13.70
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1150
rack travel mm : 7.70
Tolerance mm : ± 0.15

Rated speed rpm : 1150

Pressure hPa : 220
rack travel mm : 8.05
Tolerance mm : ± 0.05

Pressure hPa : 1050
rack travel mm : 11.90
Tolerance mm : ± 0.15

START CUT-OUT

Rated speed rpm : > 170
Rated speed rpm : < 230

Check
speed 1/min : > 150
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 344.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000s. : ± 8.0

Aneroid pressure
hPa : 2000
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 321.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000s. : ± 8.0

Aneroid pressure
hPa : 2000
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 299.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000s. : ± 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.70

Rated speed rpm : 1195
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 49.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 8.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.12.95
Test oil : ISO 4113
Combination No. : 0 403 234 005
Injection pump
Pump designation : PES4MW100/320/3RS152
: 0
EP type number : 0 413 204 015
Governor
Governor design. : RQV300...1100MW141K
Governor no. : 0 420 083 983

Cust. part No. :

Customer-spec. information
Customer : PERKINS
Motor : Phaser 110 TI
Power KW : 81.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 4.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 13.00
Tolerance mm : ± 1.00
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW before FB : 48.00
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 14.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
 cm³/1000S. : + 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000S. : 7.5

Rated speed rpm : 325

Rack travel in mm : 5.50
 Tolerance mm : + 0.20
 Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
 guide sleeve
 travel mm : 1.61
 Tolerance mm : + 0.20

Rated speed rpm : 1355
 guide sleeve
 travel mm : 10.23
 Tolerance mm : + 0.15

Rated speed rpm : 881
 guide sleeve
 travel mm : 6.46
 Tolerance mm : + 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.91
 Tolerance mm : + 0.25

Rated speed rpm : 1630
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1475
 Rack travel in mm : 10.00
 Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 134.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 120.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.10
 Rated speed rpm : 1345
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1480
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1600

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
 rack travel mm : 5.50
 Tolerance mm : + 0.10

Rated speed rpm : 200
CRT mm min. : > 7.50

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 14.05
Tolerance mm : +- 0.05

Rated speed rpm : 800
rack travel mm : 12.90
Tolerance mm : +- 0.10

Rated speed rpm : 500
rack travel mm : 11.10
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
Pressure hPa : 1000
rack travel mm : 14.05
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1300
rack travel mm : 8.80
Tolerance mm : +- 0.10

Rated speed rpm : 1300

Pressure hPa : 425
rack travel mm : 12.90
Tolerance mm : +- 0.15

Pressure hPa : 250
rack travel mm : 9.90
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 220
Rated speed rpm : < 230

Check speed 1/min : > 170
Check speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 131.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0

BREAKAWAY

Rack travel in mm : 13.10
Rated speed rpm : 1345
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : +- 7.0
Check tolerance
cm³/1000S. : +- 10.0

LOW IDLE

Rated speed rpm : 325
rack travel mm : 5.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.12.95
Test oil : ISO 4113
Combination No. : 0 403 236 005
Injection pump
Pump designation : PES6MW100/320/3RS151
: 8-1
EP type number : 0 413 206 018
Governor
Governor design. : RQV325...1300MW133
: -1K
Governor no. : 0 420 083 984
Cust. part No. :

Customer-spec. information
Customer : PERKINS
Motor : 180 TI
Power KW : 134.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0
Prestroke mm : 5.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 13.00
Tolerance mm : + 1.00
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75
Start of delivery blocking
°NW before FB : 46.50
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 14.65
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 141.0

Tolerance
 cm³/1000 strokes : + 1.0

Check tolerance
 cm³/1000S. : + 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000S. : 7.5

Rated speed rpm : 325

Rack travel in mm : 5.80
 Tolerance mm : + 0.20

Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5

Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
 guide sleeve
 travel mm : 1.61
 Tolerance mm : + 0.20

Rated speed rpm : 1355
 guide sleeve
 travel mm : 10.23
 Tolerance mm : + 0.15

Rated speed rpm : 881
 guide sleeve
 travel mm : 6.46
 Tolerance mm : + 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.91
 Tolerance mm : + 0.25

Rated speed rpm : 1630
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1475

Rack travel in mm : 10.00
 Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 900

Del. quantity
 cm³/1000 strokes : 141.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 120.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.60
 Rated speed rpm : 1345
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1480
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1600

LOW IDLE

control lever
 position degree : 75.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 5.80
Tolerance mm : + 0.10

Rated speed rpm : 200
CRT mm min. : > 8.00

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 14.65
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 13.35
Tolerance mm : + 0.10

Rated speed rpm : 500
rack travel mm : 11.50
Tolerance mm : + 0.10

Rated speed rpm : 1000
rack travel mm : 14.40
Tolerance mm : + 0.15

Rated speed rpm : 700
rack travel mm : 12.90
Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
Pressure hPa : 900
rack travel mm : 14.65
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1300
rack travel mm : 9.20
Tolerance mm : + 0.10

Rated speed rpm : 1300

Pressure hPa : 400
rack travel mm : 13.25
Tolerance mm : + 0.15

Pressure hPa : 250
rack travel mm : 10.30
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 220
Rated speed rpm : < 240

Check
speed 1/min : > 170
Check
speed 1/min : < 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 9.0

Aneroid pressure
hPa : 900
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 116.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 3.0

BREAKAWAY

Rack travel in mm : 13.60
Rated speed rpm : 1345
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : ± 7.0
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 325
rack travel mm : 5.80
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.12.95
 Test oil : ISO 4113
 Combination No. : 0 403 276 014
 Injection pump
 Pump designation : PES6MW100/720RS1527
 EP type number : 0 413 206 026
 Governor
 Governor design. : RSV350...1300MWOA391
 Governor no. : 0 420 085 277
 Cust. part No. : 0260749102

Customer-spec. information
 Customer : MB-NFZ
 Motor : OM366LA
 Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
 Test oil inlet
 temp. °C : 40
 Tolerance °C : + 2.0
 Overflow valve : 1 419 992 198
 Inlet press. bar : 1.5
 Test nozzle holde
 assembly : 1 688 901 101
 Opening pressure
 bar : 208.5
 Tolerance bar : + 1.5
 Test lines : 1 680 750 089
 Outside diameter : 8.0

x inside diameter : 3.0
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
 Tolerance bar : + 1.0
 Prestroke mm : 4.55
 Tolerance mm : + 0.05
 Check
 tolerance mm : + 0.10
 Rack travel in mm : 20.00
 Tolerance mm : + 1.00
 Firing order : 1- 5- 3- 6- 2-
 : 4
 Phasing : 0-60-120-180-240
 : -300
 Tolerance : + 0.50
 Check
 tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1300
 Rack travel in mm : 14.40
 Tolerance mm : + 0.05
 Del. quantity
 cm³/1000 strokes : 133.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000S. : 7.5
 Rated speed rpm : 350
 Rack travel in mm : 3.80
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.65
 Tolerance mm : + 0.35
 governor spring
 pre-tension
 click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 133.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 106.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1600
 rack travel mm : 4.00
 Rated speed rpm : 1465
 rack travel mm : 13.40
 Rated speed rpm : 1345
 Tolerance 1/min : + 5

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1340
 rack travel mm : 13.40
 Rated speed rpm : 1444
 Tolerance 1/min : + 4
 rack travel mm : 4.00
 Rated speed rpm : 1341
 rack travel mm : 13.40
 Rated speed rpm : 1445
 Tolerance 1/min : + 4
 rack travel mm : 4.00
 Rated speed rpm : 1342
 rack travel mm : 13.40
 Rated speed rpm : 1446
 Tolerance 1/min : + 4
 rack travel mm : 4.00
 Rated speed rpm : 1343
 rack travel mm : 13.40
 Rated speed rpm : 1447
 Tolerance 1/min : + 4
 rack travel mm : 4.00
 Rated speed rpm : 1344
 rack travel mm : 13.40
 Rated speed rpm : 1448
 Tolerance 1/min : + 4
 rack travel mm : 4.00
 Rated speed rpm : 1345
 rack travel mm : 13.40
 Rated speed rpm : 1449
 Tolerance 1/min : + 4

rack travel mm : 4.00

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 3.80

Testing:

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 14.40
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 14.40
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.40
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 800
rack travel mm : 5.10
Tolerance mm : + 0.10

Pressure hPa : 450
rack travel mm : 1.90
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 3.80
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.11.95
Test oil : ISO 4113
Combination No. : 0 403 436 114
Injection pump
Pump designation : PES6MW100/320/3RS119
: 4-1
EP type number : 0 413 406 221
Governor
Governor design. : RQV300...1300MW108K
Governor no. : 0 420 083 998

Cust. part No. :

Customer-spec. information
Customer : PERKINS
Motor : 180 TI
Power KW : 134.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

C06

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.35
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW before FB : 46.50

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 136.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.70

Tolerance mm : + 0.20

Rated speed rpm : 1355
guide sleeve
travel mm : 10.13

Tolerance mm : + 0.15

Rated speed rpm : 892
guide sleeve
travel mm : 6.43

Tolerance mm : + 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.44

Tolerance mm : + 0.25

Rated speed rpm : 1640
guide sleeve
travel mm : 13.50

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 10.00
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 136.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance

cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 120.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.15
Rated speed rpm : 1345

Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1485

Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 76.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : ± 0.10

Rated speed rpm : 200
CRT mm min. : > 8.00

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 14.15
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 13.15
Tolerance mm : ± 0.10

Rated speed rpm : 500
rack travel mm : 11.60
Tolerance mm : ± 0.10

Rated speed rpm : 1000
rack travel mm : 13.60
Tolerance mm : ± 0.15

Rated speed rpm : 700
rack travel mm : 12.75
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
Pressure hPa : 900
rack travel mm : 14.15
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1300
rack travel mm : 9.30
Tolerance mm : ± 0.10

Rated speed rpm : 1300
Pressure hPa : 220
rack travel mm : 11.20
Tolerance mm : ± 0.15

Pressure hPa : 180
rack travel mm : 10.45
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 190
Rated speed rpm : < 240

Check speed 1/min : > 170
Check speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 900
Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 130.5
Tolerance cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 5.0
Spreed Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 9.0

Aneroid pressure hPa : 900
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 111.0
Tolerance cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 5.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 62.0
Tolerance cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 13.15
Rated speed rpm : 1345
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : \pm 7.0
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.11.95
Test oil : ISO 4113

Combination No. : 0 403 444 145

Injection pump
Pump designation : PES4MW100/320RS1199
EP type number : 0 413 404 112

Governor
Governor design. : RQV300...1100MW131K
Governor no. : 0 420 083 987

Cust. part No. :

Customer-spec. information
Customer : PERKINS
Motor : VME
Power KW : 74.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 100

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

C10

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.35
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW before FB : 48.50

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 130.0

Tolerance
cm³/1000 strokes : ± 1.0

<hr/>	
Check tolerance	
cm ³ /1000S.	: + 3.0
<hr/>	
Spread	
Tolerance	
cm ³ /1000 strokes	: 3.5
<hr/>	
Check tolerance	
cm ³ /1000S.	: 6.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 6.20
Tolerance mm	: + 0.20
Del. quantity	
cm ³ /1000 strokes	: 18.0
Tolerance	
cm ³ /1000 strokes	: + 2.0
Check tolerance	
cm ³ /1000S.	: + 4.5
Spread	
Tolerance	
cm ³ /1000 strokes	: 3.5
Check tolerance	
cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.70
Tolerance mm	: + 0.20
<hr/>	
Rated speed rpm	: 1156
guide sleeve	
travel mm	: 10.48
Tolerance mm	: + 0.15
<hr/>	
Rated speed rpm	: 738
guide sleeve	
travel mm	: 5.47
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 410
guide sleeve	
travel mm	: 3.05
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1340
guide sleeve	
travel mm	: 13.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1220
<hr/>	
Rack travel in mm	: 10.00
Tolerance mm	: + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: 900
Del. quantity	
cm ³ /1000 strokes	: 130.0
Tolerance	
cm ³ /1000 strokes	: + 1.0
Check tolerance	
cm ³ /1000S.	: + 3.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 3.5
Check tolerance	
cm ³ /1000S.	: 6.0

CONTROL LEVER

control lever	
position degree	: 122.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.90
Rated speed rpm	: 1145
Tolerance 1/min	: + 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1225
Tolerance 1/min	: + 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1300

LOW IDLE

control lever	
position degree	: 76.0
tolerance degree	: + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 6.20
 Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm min. : > 7.50

TORQUE CONTROL

Rated speed rpm : 1100
 rack travel mm : 12.95
 Tolerance mm : ± 0.05

Rated speed rpm : 800
 rack travel mm : 12.50
 Tolerance mm : ± 0.10

Rated speed rpm : 500
 rack travel mm : 11.30
 Tolerance mm : ± 0.10

ANEROID/ALTITUDE
 COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
 Pressure hPa : 900
 rack travel mm : 12.95
 Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 1100
 rack travel mm : 9.30
 Tolerance mm : ± 0.10

Rated speed rpm : 1100

Pressure hPa : 225
 rack travel mm : 11.15
 Tolerance mm : ± 0.15

Pressure hPa : 150
 rack travel mm : 9.75
 Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 190
 Rated speed rpm : < 230

Check
 speed 1/min : > 170

Check
 speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 900
 Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 128.0
 Tolerance
 cm³/1000 strokes : ± 1.5
 Check tolerance
 cm³/1000S. : ± 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 7.0

Aneroid pressure
 hPa : 900
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 111.0
 Tolerance
 cm³/1000 strokes : ± 1.5
 Check tolerance
 cm³/1000S. : ± 4.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 72.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 11.90
 Rated speed rpm : 1145
 Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.00
 Tolerance mm : ± 1.00
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 strokes : ± 7.0

Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.12.95
 Test oil : ISO 4113
 Combination No. : 0 403 446 333
 Injection pump
 Pump designation : PES6MW100/72ORS1131
 : -1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RQV300...1300MW151
 Governor no. : 0 420 083 333
 Cust. part No. : 0260747102

Customer-spec. information
 Customer : MB-NFZ
 Motor : OM 366 LA
 Power KW : 155.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1
 Test oil inlet
 temp. °C : 40
 Tolerance °C : ± 2.0
 Overflow valve : 1 419 992 198
 Inlet press. bar : 1.5
 Test nozzle holder
 assembly : 0 681 343 009
 Opening pressure
 bar : 173.5
 Tolerance bar : ± 1.5
 Test lines : 1 680 750 089
 Outside diameter : 8.0

x inside diameter : 3.0
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
 Tolerance bar : ± 1.0
 Prestroke mm : 3.65
 Tolerance mm : ± 0.05
 Check
 tolerance mm : ± 0.10
 Rack travel in mm : 10.50
 Tolerance mm : ± 1.50
 Firing order : 1- 5- 3- 6- 2-
 : 4
 Phasing : 0-60-120-180-240
 : -300
 Tolerance : ± 0.50
 Check
 tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300
 Rack travel in mm : 13.15
 Tolerance mm : ± 0.05
 Del. quantity
 cm³/1000 strokes : 99.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Speed
 Tolerance
 cm³/1000 strokes : 3.5

Check tolerance
 cm³/1000S. : 6.0
 Rated speed rpm : 300
 Rack travel in mm : 6.20
 Tolerance mm : ± 0.20
 Del. quantity
 cm³/1000 strokes : 11.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.37
 Tolerance mm : ± 0.20
 Rated speed rpm : 1355
 guide sleeve
 travel mm : 8.65
 Tolerance mm : ± 0.15
 Rated speed rpm : 885
 guide sleeve
 travel mm : 5.01
 Tolerance mm : ± 0.25
 Rated speed rpm : 490
 guide sleeve
 travel mm : 2.86
 Tolerance mm : ± 0.25
 Rated speed rpm : 1610
 guide sleeve
 travel mm : 11.50
 Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1440
 Rack travel in mm : 10.00
 Tolerance mm : ± 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 99.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

CONTROL LEVER

control lever
 position degree : 113.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.10
 Rated speed rpm : 1345
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 Rated speed rpm : 1460
 Tolerance 1/min : ± 15
 rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1550

LOW IDLE

control lever
 position degree : 69.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 6.20
 Tolerance mm : ± 0.10
 Rated speed rpm : 200
 CRT mm min. : > 7.70

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 13.15
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 13.15
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.15
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.55
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 350
rack travel mm : 12.25
Tolerance mm : ± 0.15

Pressure hPa : 200
rack travel mm : 11.25
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check speed 1/min : > 80
Check speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 86.5

Tolerance cm³/1000 strokes : ± 1.5
Check tolerance cm³/1000S. : ± 4.0

Speed
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 7.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 42.0
Tolerance cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 12.10
Rated speed rpm : 1345
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 105.0
Tolerance cm³/1000 strokes : ± 5.0
Check tolerance cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : ± 0.20
Del. quantity cm³/1000 strokes : 11.0
Tolerance cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 4.5
Speed
Tolerance cm³/1000 strokes : 3.5
Check tolerance cm³/1000S. : 5.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.12.95
Test oil : ISO 4113
Combination No. : 0 403 446 334
Injection pump
Pump designation : PES6MW100/720RS1243
EP type number : 0 413 406 243
Governor
Governor design. : RQV325...1350MW153K
Governor no. : 0 420 083 982

Cust. part No. :

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8060.45.7280
Power KW : 176.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 457 413 010
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 12.00
Tolerance mm : ± 1.00
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 12.60
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 118.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 4.5

Check tolerance
 cm³/1000S. : 7.0
 Rated speed rpm : 325
 Rack travel in mm : 5.60
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
 guide sleeve
 travel mm : 1.83
 Tolerance mm : ± 0.20
 Rated speed rpm : 1442
 guide sleeve
 travel mm : 10.60
 Tolerance mm : ± 0.15
 Rated speed rpm : 902
 guide sleeve
 travel mm : 5.88
 Tolerance mm : ± 0.25
 Rated speed rpm : 470
 guide sleeve
 travel mm : 3.47
 Tolerance mm : ± 0.25
 Rated speed rpm : 1670
 guide sleeve
 travel mm : 13.50
 Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1500
 Rack travel in mm : 11.00
 Tolerance mm : ± 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 118.5
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.0

CONTROL LEVER

control lever
 position degree : 122.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.90
 Rated speed rpm : 1425
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 Rated speed rpm : 1545
 Tolerance 1/min : ± 15
 rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1650

LOW IDLE

control lever
 position degree : 77.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 325
 rack travel mm : 5.60
 Tolerance mm : ± 0.10
 Rated speed rpm : 200
 CRT mm min. : > 8.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.60
Tolerance mm : ± 0.05

Rated speed rpm : 1200
rack travel mm : 14.70
Tolerance mm : ± 0.10

Rated speed rpm : 900
rack travel mm : 13.50
Tolerance mm : ± 0.10

Rated speed rpm : 1350
rack travel mm : 14.90
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1350
Pressure hPa : 1200
rack travel mm : 14.90
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1350
rack travel mm : 9.25
Tolerance mm : ± 0.10

Rated speed rpm : 1350

Pressure hPa : 800
rack travel mm : 13.00
Tolerance mm : ± 0.15

Pressure hPa : 300
rack travel mm : 10.05
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 128.0

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 73.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 13.90
Rated speed rpm : 1425
Tolerance 1/min : ± 5

WARM-START DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

COLD-START DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 325
rack travel mm : 5.60
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.12.95
Test oil : ISO 4113
Combination No. : 0 403 446 335
Injection pump
Pump designation : PES6MW100/72ORS1243
EP type number : 0 413 406 243
Governor
Governor design. : RQV325...1350MW152K
Governor no. : 0 420 083 981

Cust. part No. :

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8060.45.7200
Power KW : 167.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 457 413 010
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 12.00
Tolerance mm : ± 1.00
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 12.60
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 118.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 4.5

Check tolerance
 cm³/1000S. : 7.0
 Rated speed rpm : 325
 Rack travel in mm : 5.00
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
 guide sleeve
 travel mm : 1.83
 Tolerance mm : + 0.20

Rated speed rpm : 1412
 guide sleeve
 travel mm : 10.24
 Tolerance mm : + 0.15

Rated speed rpm : 887
 guide sleeve
 travel mm : 5.79
 Tolerance mm : + 0.25

Rated speed rpm : 470
 guide sleeve
 travel mm : 3.47
 Tolerance mm : + 0.25

Rated speed rpm : 1670
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1450

Rack travel in mm : 10.00
 Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 118.5
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.0

CONTROL LEVER

control lever
 position degree : 124.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.00
 Rated speed rpm : 1425
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1540
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1630

LOW IDLE

control lever
 position degree : 77.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
 rack travel mm : 5.00
 Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 7.50

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.60
Tolerance mm : ± 0.05

Rated speed rpm : 1200
rack travel mm : 14.25
Tolerance mm : ± 0.10

Rated speed rpm : 900
rack travel mm : 13.30
Tolerance mm : ± 0.10

Rated speed rpm : 1350
rack travel mm : 14.25
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 11.80
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.10
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 500
rack travel mm : 11.25
Tolerance mm : ± 0.10

Pressure hPa : 300
rack travel mm : 10.05
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 124.0

Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1425
Tolerance 1/min : ± 5

WARM-START DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

COLD-START DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 325
rack travel mm : 5.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.12.95
 Test oil : ISO 4113
 Combination No. : 0 403 476 117
 Injection pump
 Pump designation : PES6MW100/720RS1131
 : -1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RSV750...1200MWOA329
 : -15
 Governor no. : 0 420 085 193
 Cust. part No. : 0220748502

Customer-spec. information
 Customer : MB-NFZ
 Motor : OM366LA
 Power KW : 148.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
 Test oil inlet
 temp. °C : 40
 Tolerance °C : ± 2.0
 Overflow valve : 1 419 992 198
 Inlet press. bar : 1.5
 Test nozzle holde
 assembly : 1 688 901 101
 Opening pressure
 bar : 208.5
 Tolerance bar : ± 1.5
 Test lines : 1 680 750 089

Outside diameter : 8.0
 x inside diameter : 3.0
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
 Tolerance bar : ± 1.0
 Prestroke mm : 3.65
 Tolerance mm : ± 0.05
 Check
 tolerance mm : ± 0.10
 Rack travel in mm : 10.50
 Tolerance mm : ± 1.50
 Firing order : 1- 5- 3- 6- 2-
 : 4
 Phasing : 0-60-120-180-240
 : -300
 Tolerance : ± 0.50
 Check
 tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1180
 Rack travel in mm : 13.15
 Tolerance mm : ± 0.05
 Del. quantity
 cm³/1000 strokes : 104.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Speed

Tolerance
 cm³/1000 strokes : 3.5

Check tolerance
 cm³/1000S. : 6.0

Rated speed rpm : 750

Rack travel in mm : 4.70
 Tolerance mm : + 0.40

Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5

Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65
 Tolerance mm : + 0.35

governor spring
 pre-tension
 click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1180
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 104.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.0

Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

CONTROL LEVER

control lever
 position degree : 97.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1400

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1230
 rack travel mm : 12.10

Rated speed rpm : 1314
 Tolerance 1/min : + 4
 rack travel mm : 4.00

Rated speed rpm : 1231
 rack travel mm : 12.10

Rated speed rpm : 1315
 Tolerance 1/min : + 4
 rack travel mm : 4.00

Rated speed rpm : 1232
 rack travel mm : 12.10

Rated speed rpm : 1316
 Tolerance 1/min : + 4
 rack travel mm : 4.00

Rated speed rpm : 1233
 rack travel mm : 12.10

Rated speed rpm : 1317
 Tolerance 1/min : + 4
 rack travel mm : 4.00

Rated speed rpm : 1238
 rack travel mm : 12.10

Rated speed rpm : 1322
 Tolerance 1/min : + 4
 rack travel mm : 4.00

Rated speed rpm : 1239
 rack travel mm : 12.10

Rated speed rpm : 1323
 Tolerance 1/min : + 4
 rack travel mm : 4.00

LOW IDLE

control lever
position degree : 76.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 750
rack travel mm : 4.70
Tolerance mm : ± 0.25

rack travel mm : 2.00
Rated speed rpm : 775
Tolerance 1/min : ± 25

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1180
rack travel mm : 13.15
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 13.15
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.15
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 500
rack travel mm : 2.20
Tolerance mm : ± 0.15

Pressure hPa : 350
rack travel mm : 1.10
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 97.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 750
rack travel mm : 4.70
Tolerance mm : ± 0.40
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 5.5

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.12.95
Test oil : ISO 4113

Combination No. : 0 400 836 021

Injection pump
Pump designation : PES6A80D410/3RS2527
EP type number : 0 410 886 059

Governor
Governor design. : RQV300...1400AB951DL
Governor no. : 0 420 214 215

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F6L912

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 12.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 69.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
 cm³/1000S. : 4.0
 Rated speed rpm : 300
 Rack travel in mm : 6.00
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 strokes : + 1.5
 Check tolerance
 cm³/1000S. : + 3.5
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.20
 Tolerance mm : + 0.15

Rated speed rpm : 1454
 guide sleeve
 travel mm : 8.60
 Tolerance mm : + 0.15

Rated speed rpm : 970
 guide sleeve
 travel mm : 5.00
 Tolerance mm : + 0.25

Rated speed rpm : 1720
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1440
 Rack travel in mm : 16.50
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
 Aneroid pressure
 hPa : -

D03

Del. quantity
 cm³/1000 strokes : 69.5
 Tolerance
 cm³/1000 strokes : + 0.5
 Check tolerance
 cm³/1000S. : + 2.0
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 4.0

CONTROL LEVER

control lever
 position degree : 103.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.00
 Rated speed rpm : 1445
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1550
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1700

LOW IDLE

control lever
 position degree : 50.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 100
 CRT mm min. : > 7.50
 Rated speed rpm : 495

TORQUE CONTROL

Dimension a mm : 0.80
 Rated speed rpm : 1400

rack travel mm : 12.05
Tolerance mm : +- 0.05

Rated speed rpm : 700
rack travel mm : 12.85
Tolerance mm : +- 0.10

Rated speed rpm : 1045
rack travel mm : 12.70
Tolerance mm : +- 0.10

Rated speed rpm : 1150
rack travel mm : 12.40
Tolerance mm : +- 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 65.5
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 3.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1445
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.45
Tolerance mm : +- 0.15

LOW IDLE

D04

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.95
Test oil : ISO 4113
Combination No. : 0 400 876 430
Injection pump
Pump designation : PES6A95D410RS2864
EP type number : 0 410 896 888
Governor
Governor design. : RSV400...1050A2C2263
: -10L
Governor no. : 0 420 232 619
Cust. part No. : 87 800 862

Customer-spec. information
Customer : FNH-GEOTECH
Motor : P 396
Power kW : 142.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

D05

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 750
Rack travel in mm : 15.00
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 450
 Rack travel in mm : 5.70
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spread
 Tolerance
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : ± 0.20
 governor spring
 pre-tension
 click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 154.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Spread
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 93.0
 tolerance degree : ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1093
 rack travel mm : 12.40
 Rated speed rpm : 1163
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1094
 rack travel mm : 12.40
 Rated speed rpm : 1164
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1095
 rack travel mm : 12.40
 Rated speed rpm : 1165
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1096
 rack travel mm : 12.40
 Rated speed rpm : 1166
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1097
 rack travel mm : 12.40
 Rated speed rpm : 1167
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1098
 rack travel mm : 12.40
 Rated speed rpm : 1168
 Tolerance 1/min : ± 5
 rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 5.20

Testing:

Rated speed rpm : 450
rack travel mm : 5.70
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 590
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 15.00
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 15.15
Tolerance mm : ± 0.10

Rated speed rpm : 1050
rack travel mm : 12.90
Tolerance mm : ± 0.05

Rated speed rpm : 1050
rack travel mm : 13.40
Tolerance mm : ± 0.10

Rated speed rpm : 950
rack travel mm : 14.30
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 15.15
Tolerance mm : ± 0.10

D07

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.30
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 750
rack travel mm : 13.70
Tolerance mm : ± 0.05

Pressure hPa : 500
rack travel mm : 11.40
Tolerance mm : ± 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : ± 8.0
Check tolerance
cm³/1000S. : ± 11.0

LOW IDLE

Rated speed rpm : 450
rack travel mm : 5.70
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5
Spread
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.12.95
Test oil : ISO 4113

Combination No. : 0 401 849 757

Injection pump
Pump designation : PE10P120A520/4LS3863
EP type number : 0 411 897 711

Governor
Governor design. : RQ300/930PA1230
Governor no. : 0 421 801 792

Cust. part No. :

Customer-spec. information
Customer : DAEWOO
Motor : D2840LE

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 10- 9- 4- 1- 8
: - 7- 6- 3- 5
: - 2

Phasing : 0-45-72-117-144
: -189-216-261-288
: -333
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 10

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.90

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 208.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 300

Rack travel in mm : 7.00
Tolerance mm : \pm 0.30

Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Spread
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.44
Tolerance mm : \pm 0.10

Rated speed rpm : 932
guide sleeve
travel mm : 6.37
Tolerance mm : \pm 0.10

Rated speed rpm : 880
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 433
guide sleeve
travel mm : 4.94
Tolerance mm : \pm 0.10

Rated speed rpm : 510
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 208.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 32.0
tolerance degree : \pm 4.0

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.90
Rated speed rpm : 925
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 970
Tolerance 1/min : \pm 15

rack travel mm : 0.50

Tolerance mm : ± 0.50
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

control lever
position degree : 12.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 415
Tolerance 1/min : ± 20

Rated speed rpm : 200

CRT mm min. : > 9.40

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 12.90
Tolerance mm : ± 0.05

Rated speed rpm : 650
rack travel mm : 12.90
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650

Del. quantity
cm³/1000 strokes : 212.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

BREAKAWAY

Rack travel in mm : 11.90
Rated speed rpm : 925
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.12.95
Test oil : ISO 4113

Combination No. : 0 401 876 793

Injection pump
Pump designation : PE6P120A320RS3314
EP type number : 0 411 826 806

Governor
Governor design. : RSV350...1100P1A559
Governor no. : 0 421 833 389

Cust. part No. : 1342534

Customer-spec. information
Customer : SCANIA
Motor : D9

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper
(RoBo diaphragm) : 4.2

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 104

Opening pressure bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.45
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 152.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : + 4.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 152.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 40.0
tolerance degree : + 4.0

control lever
position degree : 90.0
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750
rack travel mm : 10.45

Rated speed rpm : 788
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 751
rack travel mm : 10.45

Rated speed rpm : 789
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 752
rack travel mm : 10.45

Rated speed rpm : 790
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 753
rack travel mm : 10.45

Rated speed rpm : 791
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 850

 Rated speed rpm : 754
 rack travel mm : 10.45

 Rated speed rpm : 792
 Tolerance 1/min : \pm 4
 rack travel mm : 4.00

 rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 850

 Rated speed rpm : 755
 rack travel mm : 10.45

 Rated speed rpm : 793
 Tolerance 1/min : \pm 4
 rack travel mm : 4.00

 rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 850

TORQUE CONTROL

Rated speed rpm : 700
 rack travel mm : 11.45
 Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1500
 rack travel mm : 11.45
 Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : 10.00
 Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 180
 rack travel mm : 10.50
 Tolerance mm : \pm 0.15

Pressure hPa : 250

rack travel mm : 10.95
 Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 116.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 10.00
 Tolerance mm : \pm 0.20
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 strokes : \pm 20.0
 Check tolerance
 cm³/1000S. : \pm 24.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.12.95
Test oil : ISO 4113

Combination No. : 0 402 044 700

Injection pump
Pump designation : PES4P110A32ORS3350
EP type number : 0 412 014 700

Governor
Governor design. : RQV350...1400PA1221K
Governor no. : 0 421 815 472

Cust. part No. : 16700-D8703 / M
: -2004

Customer-spec. information

Customer : NMI
Motor : B4.40 EURO II
Power KW : 101.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : 180.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 15.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 178.0

<hr/>	
Tolerance	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 3.0
<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 350
<hr/>	
Rack travel in mm	: 9.50
Tolerance mm	: ± 0.30
Del. quantity	
cm ³ /1000 strokes	: 31.0
Tolerance	
cm ³ /1000 strokes	: ± 2.5
Check tolerance	
cm ³ /1000S.	: ± 5.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve	
travel mm	: 1.46
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1417
guide sleeve	
travel mm	: 9.99
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 994
guide sleeve	
travel mm	: 6.77
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 610
guide sleeve	
travel mm	: 3.96
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1730
guide sleeve	
travel mm	: 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1515
<hr/>	
Rack travel in mm	: 14.50
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1300
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm ³ /1000 strokes	: 178.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 3.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 65.0
tolerance degree	: ± 4.0
<hr/>	
control lever	
position degree	: 122.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 14.40
Rated speed rpm	: 1410
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1585
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1640

LOW IDLE

control lever
position degree : 82.0
tolerance degree : +- 4.0

control lever
position degree : 26.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 9.50
Tolerance mm : +- 0.10

Rated speed rpm : 250
CRT mm min. : > 10.80

Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 15.40
Tolerance mm : +- 0.05

Rated speed rpm : 780
rack travel mm : 13.70
Tolerance mm : +- 0.15

Rated speed rpm : 1000
rack travel mm : 14.30
Tolerance mm : +- 0.20

Rated speed rpm : 1250
rack travel mm : 15.40
Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
Pressure hPa : 1500
rack travel mm : 15.40
Tolerance mm : +- 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1300
rack travel mm : 12.75
Tolerance mm : +- 0.10

Rated speed rpm : 1300

Pressure hPa : 940
rack travel mm : 14.45
Tolerance mm : +- 0.10

Pressure hPa : 520
rack travel mm : 13.25
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : > 270

Check
speed 1/min : > 80
Check
speed 1/min : > 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 780
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 136.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 14.40
Rated speed rpm : 1410
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 9.50
Tolerance mm : +- 0.30
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : +- 2.5
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.12.95
Test oil : ISO 4113
Combination No. : 0 402 046 864
Injection pump
Pump designation : PES6P120A320RS3337
: -1
EP type number : 0 412 026 772
Governor
Governor design. : RQV300...1250PA1149
: -1K
Governor no. : 0 421 815 421
Cust. part No. : CCEP 5142A 66-219

Customer-spec. information

Customer : RVI
Motor : MIDR 06-02-26 W4
Power KW : 155.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 084
Inlet press. bar : 2.5
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 13.00
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 13.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 202.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -8.20

Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : ± 0.20

Rated speed rpm : 1328
guide sleeve
travel mm : 9.98
Tolerance mm : ± 0.15

Rated speed rpm : 876
guide sleeve
travel mm : 6.02
Tolerance mm : ± 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 3.59
Tolerance mm : ± 0.25

Rated speed rpm : 1600
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 12.15

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

hPa : 1000

Del. quantity

cm³/1000 strokes : 202.5

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Spreed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 296.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1312

Tolerance 1/min : ± 5

rack travel mm : -9.20

Rated speed rpm : 1440

Tolerance 1/min : ± 15

rack travel mm : -12.65

Tolerance mm : ± 0.50

Rated speed rpm : 1550

LOW IDLE

control lever

position degree : 245.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -8.20
Tolerance mm : + 0.10

Rated speed rpm : 200
CRT mm min. : < -7.40

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850
rack travel mm : -1.85
Tolerance mm : + 0.15

Rated speed rpm : 350
rack travel mm : -1.60
Tolerance mm : + 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1000
rack travel mm : -1.40

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : -3.40
Tolerance mm : + 0.20

Rated speed rpm : 1000

Pressure hPa : 240
rack travel mm : -2.55
Tolerance mm : + 0.10

Pressure hPa : 320
rack travel mm : -1.80
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 175
Rated speed rpm : < 240

Check speed 1/min : > 155

Check speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 127.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1312
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -8.20
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.12.95
Test oil : ISO 4113

Combination No. : 0 402 046 877

Injection pump
Pump designation : PES6P120A320RS3337
: -1
EP type number : 0 412 026 772

Governor
Governor design. : RQV300...1250PA1149
: -2K
Governor no. : 0 421 815 504

Cust. part No. : CCEP 5158 66-218

Customer-spec. information
Customer : RVI
Motor : MIDR 06-02-26 V4
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 150.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -8.30
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 5.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : + 0.20

Rated speed rpm : 1311
guide sleeve
travel mm : 9.80
Tolerance mm : + 0.15

Rated speed rpm : 868
guide sleeve
travel mm : 5.97
Tolerance mm : + 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 3.59
Tolerance mm : + 0.25

Rated speed rpm : 1600
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1395

Rack travel in mm : 11.60
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 150.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 293.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1296
Tolerance 1/min : + 5

rack travel mm : -8.60
Rated speed rpm : 1426
Tolerance 1/min : + 15

rack travel mm : -12.10
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 241.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -8.30
Tolerance mm : + 0.10

Rated speed rpm : 200
CRT mm min. : < -6.67

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850
rack travel mm : -1.85
Tolerance mm : + 0.15

Rated speed rpm : 350
rack travel mm : -2.70
Tolerance mm : + 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1000
rack travel mm : -1.20

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : -2.45
Tolerance mm : + 0.20

Rated speed rpm : 1000

Pressure hPa : 160
rack travel mm : -2.15
Tolerance mm : + 0.10

Pressure hPa : 280
rack travel mm : -1.20
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 225

Check speed 1/min : > 80

Check speed 1/min : < 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
Rated speed rpm : 850
Del. quantity cm³/1000 strokes : 126.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0

Aneroid pressure hPa : -
Rated speed rpm : 1000
Del. quantity cm³/1000 strokes : 124.5
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1296
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 108.0
Tolerance cm³/1000 strokes : + 15.0
Check tolerance cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -8.30
Tolerance mm : + 0.20
Del. quantity cm³/1000 strokes : 26.0
Tolerance cm³/1000 strokes : + 2.0
Check tolerance cm³/1000S. : + 5.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.10.95
Test oil : ISO 4113

Combination No. : 0 402 076 762

Injection pump
Pump designation : PES6P120A720RS3322
EP type number : 0 412 026 764

Governor
Governor design. : RSV650...1250P8A567
: -1
Governor no. : 0 421 833 422

Cust. part No. :

Customer-spec. information
Customer : FNH-GEOTECH
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 105
Tolerance L/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.70
 Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 137.5

Tolerance
 cm³/1000 strokes : + 1.0

Check tolerance
 cm³/1000S. : + 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 21.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
 Tolerance mm : + 0.20

governor spring
 pre-tension
 click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 137.5
 Tolerance
 cm³/1000 strokes : + 1.0

Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 111.0
 tolerance degree : + 4.0

RATED SPEED

Rated speed rpm : 1330

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1293
 rack travel mm : 9.65

Rated speed rpm : 1325
 Tolerance 1/min : + 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1500

Rated speed rpm : 1294
 rack travel mm : 9.65

Rated speed rpm : 1326
 Tolerance 1/min : + 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + 0.55

Rated speed rpm : 1295
 rack travel mm : 9.65

Rated speed rpm : 1327
 Tolerance 1/min : + 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + 0.55

Rated speed rpm : 1296
 rack travel mm : 9.65

Rated speed rpm : 1328
 Tolerance 1/min : + 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + 0.55

 Rated speed rpm : 1297
 rack travel mm : 9.65

 Rated speed rpm : 1329
 Tolerance 1/min : + 5
 rack travel mm : 4.00

 rack travel mm : 0.85
 Tolerance mm : + 0.55

 Rated speed rpm : 1298
 rack travel mm : 9.65

 Rated speed rpm : 1330
 Tolerance 1/min : + 5
 rack travel mm : 4.00

 rack travel mm : 0.85
 Tolerance mm : + 0.55

LOW IDLE

control lever
 position degree : 80.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
 rack travel mm : 4.10

Testing:

Rated speed rpm : 650
 rack travel mm : 4.60
 Tolerance mm : + 0.10

rack travel mm : 2.00
 Rated speed rpm : 750
 Tolerance 1/min : + 50

TORQUE CONTROL

Rated speed rpm : 1250
 rack travel mm : 10.70
 Tolerance mm : + 0.05

Rated speed rpm : 900
 rack travel mm : 11.10
 Tolerance mm : + 0.10

Rated speed rpm : 1100
 rack travel mm : 10.95
 Tolerance mm : + 0.10

Rated speed rpm : 700
 rack travel mm : 11.10
 Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1500
 rack travel mm : 11.10
 Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : 7.70
 Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 630
 rack travel mm : 10.75
 Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100

Check
 speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1500
 Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : 150.5
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 82.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.12.95
Test oil : ISO 4113
Combination No. : 0 402 646 604
Injection pump
Pump designation : PE6P120A720RS7188
 : -10
EP type number : 0 412 626 924
Governor
Governor design. : RQV350...1050PA795
 : -13
Governor no. : 0 421 814 017
Cust. part No. : 1337549

Customer-spec. information
Customer : SCANIA
Motor : DS11 Allvarv

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Vibration damper
(RoBo diaphragm) : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 2.5
Tolerance bar : +- 0.1
Test nozzle holde assembly : 1 688 901 104
Opening pressure bar : 251.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 4.45
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300
Tolerance : +- 0.30
Check tolerance °NW : +- 0.50
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 13.35
Tolerance mm : +- 0.05
Del. quantity cm³/1000 strokes : 236.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 4.70
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1280

Rack travel in mm : 12.00
Tolerance mm : + 1.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 236.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 45.0
tolerance degree : + 4.0

control lever
position degree : 102.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.30
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1230
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

control lever
position degree : 15.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.70
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 8.00

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.35
Tolerance mm : + 0.05

Rated speed rpm : 1050
rack travel mm : 13.35

Tolerance mm : +- 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.35
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.40
Tolerance mm : +- 0.20

Rated speed rpm : 500

Pressure hPa : 440
rack travel mm : 12.05
Tolerance mm : +- 0.05

Pressure hPa : 270
rack travel mm : 11.00
Tolerance mm : +- 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : +- 4.0
Check tolerance
cm³/1000S. : +- 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 12.30
Rated speed rpm : 1095
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.40
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : +- 20.0
Check tolerance
cm³/1000S. : +- 24.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 4.70
Tolerance mm : +- 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.12.95
Test oil : ISO 4113

Combination No. : 0 402 646 608

Injection pump
Pump designation : PE6P120A720RS7188
: -10J
EP type number : 0 412 626 926

Governor
Governor design. : RQ200/950PA745-3
Governor no. : 0 421 801 579

Cust. part No. : 1344920

Customer-spec. information
Customer : SCANIA
Motor : DSC 11 71

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity min. l/h : 235
Tolerance l/h : ± 20.0

Test nozzle holde assembly : 1 688 901 104

Opening pressure bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm	:	700
<hr/>		
Rack travel in mm	:	10.75
Tolerance mm	:	+ 0.05
<hr/>		
Del. quantity		
cm ³ /1000 strokes	:	157.0
<hr/>		
Tolerance		
cm ³ /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance		
cm ³ /1000S.	:	+ 4.0
<hr/>		
Spread		
Tolerance		
cm ³ /1000 strokes	:	8.0
<hr/>		
Check tolerance		
cm ³ /1000S.	:	12.0
<hr/>		
Rated speed rpm	:	250
<hr/>		
Rack travel in mm	:	4.70
Tolerance mm	:	+ 0.30
Del. quantity		
cm ³ /1000 strokes	:	16.0
Tolerance		
cm ³ /1000 strokes	:	+ 3.0
Check tolerance		
cm ³ /1000S.	:	+ 6.0
Spread		
Tolerance		
cm ³ /1000 strokes	:	4.0
Check tolerance		
cm ³ /1000S.	:	8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	250
guide sleeve		
travel mm	:	1.41
Tolerance mm	:	+ 0.20
<hr/>		
Rated speed rpm	:	1006
guide sleeve		
travel mm	:	4.90
Tolerance mm	:	+ 0.15
<hr/>		
Rated speed rpm	:	930
guide sleeve		
travel mm	:	4.50
Tolerance mm	:	+ 0.10

Rated speed rpm	:	355
guide sleeve		
travel mm	:	2.97
Tolerance mm	:	+ 0.10
<hr/>		
Rated speed rpm	:	520
guide sleeve		
travel mm	:	4.50
Tolerance mm	:	+ 0.10
<hr/>		
Rated speed rpm	:	1045
guide sleeve		
travel mm	:	5.50
Tolerance mm	:	+ 0.10
<hr/>		
Rated speed rpm	:	1360
guide sleeve		
travel mm	:	11.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	:	600
<hr/>		
Rack travel in mm	:	16.50
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure		
hPa	:	-
Del. quantity		
cm ³ /1000 strokes	:	157.0
Tolerance		
cm ³ /1000 strokes	:	+ 1.0
Check tolerance		
cm ³ /1000S.	:	+ 4.0
Spread		
Tolerance		
cm ³ /1000 strokes	:	8.0
Check tolerance		
cm ³ /1000S.	:	12.0

CONTROL LEVER

control lever		
position degree	:	41.0
tolerance degree	:	+ 4.0
<hr/>		
control lever		
position degree	:	95.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm : 9.70
Rated speed rpm : 995
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1100
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 62.0
tolerance degree : + 4.0

control lever
position degree : 7.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 340
Tolerance 1/min : + 20

Rated speed rpm : 150

CRT mm min. : > 6.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 10.75
Tolerance mm : + 0.05

Rated speed rpm : 950
rack travel mm : 10.75
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 950

Del. quantity
cm³/1000 strokes : 158.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 6.0

BREAKAWAY

Rack travel in mm : 9.70
Rated speed rpm : 995
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.75
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 24.0

LOW IDLE

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 12.12.95
 Test oil : ISO 4113

Combination No. : 0 402 646 657

Injection pump
 Pump designation : PE6P130A32ORS7368
 EP type number : 0 412 636 836

Governor
 Governor design. : RQV250...1125PA1210K
 Governor no. : 0 421 815 460

Cust. part No. : 866737-P04 v. 11/95

Customer-spec. information

Customer : PENTA
 Motor : TAMD 122 P
 Power KW : 426.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration damper
 (RoBo diaphragm) : 4.1

Test oil inlet temp. °C : 40
 Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5
 Tolerance bar : + 0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5
 Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
 Tolerance bar : + 1.0

Prestroke mm : 4.45
 Tolerance mm : + 0.05
 Check tolerance mm : + 0.10

Rack travel in mm : 7.00
 Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
 Tolerance : + 0.30
 Check tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1125

Rack travel in mm : 11.40
 Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 313.0

Tolerance
cm³/1000 strokes : + 1.5

Check tolerance
cm³/1000S. : + 5.0

Spreed
Tolerance
cm³/1000 strokes : 9.0

Check tolerance
cm³/1000S. : 13.0

Rated speed rpm : 260

Rack travel in mm : 4.70
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 260
guide sleeve
travel mm : 1.69
Tolerance mm : + 0.25

Rated speed rpm : 1176
guide sleeve
travel mm : 10.15
Tolerance mm : + 0.25

Rated speed rpm : 782
guide sleeve
travel mm : 6.36
Tolerance mm : + 0.25

Rated speed rpm : 275
guide sleeve
travel mm : 2.04
Tolerance mm : + 0.25

Rated speed rpm : 325

guide sleeve
travel mm : 2.73
Tolerance mm : + 0.25

Rated speed rpm : 430
guide sleeve
travel mm : 3.61
Tolerance mm : + 0.25

Rated speed rpm : 1420
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1284

Rack travel in mm : 10.50
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1125
Aneroid pressure
hPa : 2000

Del. quantity
cm³/1000 strokes : 313.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 5.0

Spreed
Tolerance
cm³/1000 strokes : 9.0
Check tolerance
cm³/1000S. : 13.0

CONTROL LEVER

control lever
position degree : 64.0
tolerance degree : + 4.0

control lever
position degree : 118.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.40
Rated speed rpm : 1165
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1246

Tolerance 1/min : + 15
rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

control lever
position degree : 18.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 260
rack travel mm : 4.70
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 5.90

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1125
rack travel mm : 11.40
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 10.55
Tolerance mm : + 0.15

Rated speed rpm : 500
rack travel mm : 9.70
Tolerance mm : + 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1125
Pressure hPa : 2000
rack travel mm : 11.40
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 7.15
Tolerance mm : + 0.20

Rated speed rpm : 1125

Pressure hPa : 1190
rack travel mm : 3.80
Tolerance mm : + 0.20

Pressure hPa : 160
rack travel mm : 0.25
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 311.0

Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000s. : 14.0

Aneroid pressure
hPa : 2000
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 187.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000s. : + 5.0

BREAKAWAY

Rack travel in mm : 10.40

Rated speed rpm : 1165
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 7.15
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 20.0

LOW IDLE

Rated speed rpm : 260
rack travel mm : 4.70
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.09.95
Test oil : ISO 4113
Combination No. : 0 402 698 806
Injection pump
Pump designation : PE8P120A720LS7331
 : -10
EP type number : 0 412 628 896
Governor
Governor design. : RE30
Governor no. : 0 421 890 022

Cust. part No. : 1362097

Customer-spec. information
Customer : SCANIA
Motor : DSC1409,DSC1416

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : +- 0.1

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 5.05

Prestroke mm : 5.05
Tolerance mm : +- 0.05
Tolerance mm : +- 0.05

Check
tolerance mm : +- 0.10
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50

Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Tolerance mm : +- 1.50

Firing order : 1- 2- 7- 3- 4
 : - 5- 6- 8

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : +- 0.30
Check
tolerance °NW : +- 0.50

Start of delivery mark

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 248.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 224.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.12.95
Test oil : ISO 4113
Combination No. : 0 402 736 890
Injection pump
Pump designation : PES6P120A120RS7314
EP type number : 0 412 726 901
Governor
Governor design. : RQV400...1250PA964
 : -32K
Governor no. : 0 421 815 486
Cust. part No. : 3282607

Customer-spec. information

Customer : CUMMINS
Motor : 6BTAA
Power KW : 158.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 086
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

E15

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 12.50
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery blocking
°NW after s.o.d. : 6.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm	:	14.20
Tolerance mm	:	+ 0.05
<hr/>		
Del. quantity cm ³ /1000 strokes	:	149.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	+ 4.0
<hr/>		
Spread Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		
Rated speed rpm	:	400
<hr/>		
Rack travel in mm	:	6.50
Tolerance mm	:	+ 0.30
Del. quantity cm ³ /1000 strokes	:	20.0
Tolerance cm ³ /1000 strokes	:	+ 3.0
Check tolerance cm ³ /1000S.	:	+ 5.0
Spread Tolerance cm ³ /1000 strokes	:	7.0
Check tolerance cm ³ /1000S.	:	11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	400
guide sleeve travel mm	:	1.39
Tolerance mm	:	+ 0.20
<hr/>		
Rated speed rpm	:	1314
guide sleeve travel mm	:	7.65
Tolerance mm	:	+ 0.15
<hr/>		
Rated speed rpm	:	864
guide sleeve travel mm	:	4.76
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	550

guide sleeve travel mm	:	3.33
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1700
guide sleeve travel mm	:	11.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	:	1430
<hr/>		
Rack travel in mm	:	13.60
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1250
Aneroid pressure hPa	:	1500
Del. quantity cm ³ /1000 strokes	:	149.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 4.0
Spread Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	59.0
tolerance degree	:	+ 4.0
<hr/>		
control lever position degree	:	116.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	13.20
Rated speed rpm	:	1295
Tolerance 1/min	:	+ 5
<hr/>		
rack travel mm	:	4.00
Rated speed rpm	:	1490
Tolerance 1/min	:	+ 15
<hr/>		
rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1550

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 4.0

control lever
position degree : 15.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 400
rack travel mm : 6.50
Tolerance mm : ± 0.10

Rated speed rpm : 300

CRT mm min. : > 8.50

Rated speed rpm : 430

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 14.20
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 12.75
Tolerance mm : ± 0.10

Rated speed rpm : 400
rack travel mm : 12.15
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1500
rack travel mm : 14.20
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : 11.00
Tolerance mm : ± 0.10

Rated speed rpm : 1250
Pressure hPa : 480
rack travel mm : 11.80
Tolerance mm : ± 0.20

Pressure hPa : 700
rack travel mm : 13.50
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 270
Rated speed rpm : < 340

Check
speed 1/min : > 250
Check
speed 1/min : < 360

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.20
Rated speed rpm : 1295
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 6.50
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.95
Test oil : ISO 4113

Combination No. : 0 402 746 647

Injection pump
Pump designation : PES6P120A72DRS7366
EP type number : 0 412 726 933

Governor
Governor design. : RQV275...1100PA1208K
Governor no. : 0 421 815 459

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8460.41.4000

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 273.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
 Tolerance
 cm3/1000 strokes : 5.0

Check tolerance
 cm3/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 6.80
 Tolerance mm : ± 0.20
 Del. quantity
 cm3/1000 strokes : 23.0
 Tolerance
 cm3/1000 strokes : ± 3.0
 Check tolerance
 cm3/1000S. : ± 6.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
 guide sleeve
 travel mm : 1.70
 Tolerance mm : ± 0.20

Rated speed rpm : 1155
 guide sleeve
 travel mm : 9.75
 Tolerance mm : ± 0.15

Rated speed rpm : 790
 guide sleeve
 travel mm : 6.42
 Tolerance mm : ± 0.25

Rated speed rpm : 460
 guide sleeve
 travel mm : 3.77
 Tolerance mm : ± 0.25

Rated speed rpm : 1440
 guide sleeve
 travel mm : 13.50
 Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1310

E20

Rack travel in mm : 10.00
 Tolerance mm : ± 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm3/1000 strokes : 273.0
 Tolerance
 cm3/1000 strokes : ± 1.0
 Check tolerance
 cm3/1000S. : ± 4.0
 Spreed
 Tolerance
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 117.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.70
 Rated speed rpm : 1145
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1260
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever
 position degree : 76.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275
 rack travel mm : 6.80
 Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 8.30
Rated speed rpm : 335

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.75
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 13.40
Tolerance mm : + 0.10

Rated speed rpm : 650
rack travel mm : 13.10
Tolerance mm : + 0.10

Rated speed rpm : 500
rack travel mm : 13.10
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1200
rack travel mm : 13.40
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 800
rack travel mm : 9.70
Tolerance mm : + 0.10

Rated speed rpm : 800

Pressure hPa : 290
rack travel mm : 10.70
Tolerance mm : + 0.20

Pressure hPa : 520
rack travel mm : 12.50
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 170
Rated speed rpm : < 220

Check
speed 1/min : > 150
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 264.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 11.70
Rated speed rpm : 1145
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.20
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : 6.80
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.12.95
Test oil : ISO 4113
Combination No. : 0 403 444 155
Injection pump
Pump designation : PES4MW100/72ORS1235
EP type number : 0 413 404 121
Governor
Governor design. : RQV300...1300MW139
Governor no. : 0 420 083 304

Cust. part No. : 0260748502

Customer-spec. information
Customer : MB-NFZ
Motor : OM364A
Power KW : 79.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.70
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.00
Tolerance mm : + 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.15
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 90.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
 cm³/1000S. : 6.0
 Rated speed rpm : 300
 Rack travel in mm : 7.80
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.24
 Tolerance mm : + 0.20
 Rated speed rpm : 1355
 guide sleeve
 travel mm : 10.32
 Tolerance mm : + 0.15
 Rated speed rpm : 894
 guide sleeve
 travel mm : 6.18
 Tolerance mm : + 0.25
 Rated speed rpm : 510
 guide sleeve
 travel mm : 3.56
 Tolerance mm : + 0.25
 Rated speed rpm : 1600
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1430
 Rack travel in mm : 10.00
 Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

CONTROL LEVER

control lever
 position degree : 114.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.15
 Rated speed rpm : 1345
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1450
 Tolerance 1/min : + 15
 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1550

LOW IDLE

control lever
 position degree : 76.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 7.80
 Tolerance mm : + 0.10
 Rated speed rpm : 200
 CRT mm min. : > 9.50

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 13.15
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 13.40
Tolerance mm : ± 0.10

Rated speed rpm : 1000
rack travel mm : 13.30
Tolerance mm : ± 0.10

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 13.40
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 230
rack travel mm : 1.00
Tolerance mm : ± 0.10

Pressure hPa : 150
rack travel mm : 0.40
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 200

Check speed 1/min : > 80
Check speed 1/min : < 230

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 78.0
Tolerance

cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 49.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 12.15
Rated speed rpm : 1345
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 7.80
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.12.95
Test oil : ISO 4113
Combination No. : 0 403 466 173
Injection pump
Pump designation : PES6MW100/120RS1241
EP type number : 0 413 406 240
Governor
Governor design. : RSV400...950MWOA384
: -1
Governor no. : 0 420 085 285
Cust. part No. : 3930118

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 145.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
°NW after s.o.d. : 7.50
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950
Rack travel in mm : 12.50
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : ± 1.0

<hr/>	
Check tolerance	
cm3/1000S.	: + 4.0
<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm3/1000S.	: 7.5
<hr/>	
Rated speed rpm	: 400
<hr/>	
Rack travel in mm	: 5.80
Tolerance mm	: + 0.30
Del. quantity	
cm3/1000 strokes	: 22.0
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.5
Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.65
Tolerance mm	: + 0.35
<hr/>	
governor spring	
pre-tension	
click setting x	: 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 950
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm3/1000 strokes	: 147.0
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 4.0

Check tolerance	
cm3/1000S.	: 7.5

CONTROL LEVER

control lever	
position degree	: 80.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.50
Rated speed rpm	: 995
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1080
Tolerance 1/min	: + 15

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1250

rack travel mm	: 4.00
Rated speed rpm	: 1095

LOW IDLE

control lever	
position degree	: 68.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 400
rack travel mm	: 5.30

Testing:

Rated speed rpm	: 400
rack travel mm	: 5.80
Tolerance mm	: + 0.30

rack travel mm	: 2.00
Rated speed rpm	: 505
Tolerance 1/min	: + 35

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.50
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TORQUE CONTROL

Rated speed rpm	: 950
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rack travel mm : 12.50
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 12.50
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.25
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 850
rack travel mm : 11.70
Tolerance mm : ± 0.20

Pressure hPa : 680
rack travel mm : 10.75
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.50
Rated speed rpm : 995
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100

F01

rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 5.80
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.12.95
Test oil : ISO 4113

Combination No. : 0 400 846 185

Injection pump
Pump designation : PES6A80D410RS2085Y
EP type number : 0 410 886 044

Governor
Governor design. : RQV300...1475AB533DL
Governor no. : 0 420 214 069

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 352

TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

F02

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1450

Rack travel in mm : 8.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 46.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 300

Rack travel in mm : 7.00
 Tolerance mm : +- 0.10
 Del. quantity
 cm3/1000 strokes : 14.5
 Tolerance
 cm3/1000 strokes : +- 1.5
 Check tolerance
 cm3/1000S. : +- 3.5
 Spreed
 Tolerance
 cm3/1000 strokes : 4.0
 Check tolerance
 cm3/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.04
 Tolerance mm : +- 0.20

Rated speed rpm : 1516
 guide sleeve
 travel mm : 8.76
 Tolerance mm : +- 0.15

Rated speed rpm : 997
 guide sleeve
 travel mm : 5.19
 Tolerance mm : +- 0.25

Rated speed rpm : 590
 guide sleeve
 travel mm : 3.20
 Tolerance mm : +- 0.25

Rated speed rpm : 1790
 guide sleeve
 travel mm : 11.50
 Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1420
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1450

F03

Aneroid pressure
 hPa : -
 Del. quantity
 cm3/1000 strokes : 46.5
 Tolerance
 cm3/1000 strokes : +- 0.5
 Check tolerance
 cm3/1000S. : +- 2.0
 Spreed
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 4.0

CONTROL LEVER

control lever
 position degree : 114.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 7.20
 Rated speed rpm : 1510
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1575
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1700

LOW IDLE

control lever
 position degree : 69.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 7.00
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 8.20

Rated speed rpm : 440

TORQUE CONTROL

Rated speed rpm : 1450
rack travel mm : 8.25
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 9.25
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 9.00
Tolerance mm : ± 0.10

Rated speed rpm : 1200
rack travel mm : 8.35
Tolerance mm : ± 0.15

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check speed 1/min : > 80
Check speed 1/min : < 240

BREAKAWAY

Rack travel in mm : 7.20
Rated speed rpm : 1510
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.10
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 14.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.12.95
Test oil : ISO 4113
Combination No. : 0 401 876 777
Injection pump
Pump designation : PE6P120A320RS3261
EP type number : 0 411 826 796
Governor
Governor design. : RSV250...1100POA374
: -11
Governor no. : 0 421 833 346

Cust. part No. : 864451 P04 v. 6/95

Customer-spec. information
Customer : PENTA
Motor : TAMD 102 A

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Vibration damper (RoBo diaphragm) : 4.1
Test oil inlet temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 2 417 413 077
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 019
Opening pressure bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 067
Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 3.45
Tolerance mm : + 0.05
Check tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check tolerance °NW : + 0.50
Start of delivery mark
Tolerance : + 0.50
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 12.15
Tolerance mm : + 0.05

<hr/>	
Del. quantity	
cm3/1000 strokes :	260.0
<hr/>	
Tolerance	
cm3/1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: + 4.0
<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes :	5.0
<hr/>	
Check tolerance	
cm3/1000S.	: 9.0
<hr/>	
Rated speed rpm	: 250
<hr/>	
Rack travel in mm	: 6.50
Tolerance mm	: + 0.20
Del. quantity	
cm3/1000 strokes	: 23.0
Tolerance	
cm3/1000 strokes	: + 3.0
Check tolerance	
cm3/1000S.	: + 6.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring	
pre-tension	
click setting x	: 2.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm3/1000 strokes	: 260.0
Tolerance	
cm3/1000 strokes	: + 1.0

F06

Check tolerance	
cm3/1000S.	: + 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 44.0
tolerance degree	: + 4.0
<hr/>	
control lever	
position degree	: 94.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.10
Rated speed rpm	: 1145
Tolerance 1/min	: + 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1210
Tolerance 1/min	: + 15
<hr/>	
rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1350
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1220

LOW IDLE

control lever	
position degree	: 69.0
tolerance degree	: + 4.0
<hr/>	
control lever	
position degree	: 19.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 250
rack travel mm	: 6.00
<hr/>	
Testing:	
Rated speed rpm	: 250
rack travel mm	: 6.50
Tolerance mm	: + 0.10

rack travel mm : 2.00
Rated speed rpm : 395
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.15
Tolerance mm : + 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.15
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.10
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 900
rack travel mm : 3.60
Tolerance mm : + 0.10

Pressure hPa : 140
rack travel mm : 0.25
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 11.10
Rated speed rpm : 1145
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.00
Tolerance mm : + 1.00

LOW IDLE

Rated speed rpm : 250
rack travel mm : 6.50
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.12.95
Test oil : ISO 4113

Combination No. : 0 401 876 810

Injection pump
Pump designation : PE6P120A320RS3359
EP type number : 0 411 826 815

Governor
Governor design. : RSV325...1200P1A615
Governor no. : 0 421 833 503

Cust. part No. : 3825515 P02 v. 10/95

Customer-spec. information

Customer : PENTA
Motor : TD 730ME
Power KW : 150.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5
Tolerance bar : +- 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 3.35
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 9.00
Tolerance mm : +- 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.30
Check
tolerance °NW : +- 0.50

Start of delivery mark

Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.00
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 123.0

<hr/>	
Tolerance	
cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: +- 4.0
<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes	: 7.0
<hr/>	
Check tolerance	
cm3/1000S.	: 11.0
<hr/>	
Rated speed rpm	: 325
<hr/>	
Rack travel in mm	: 4.60
Tolerance mm	: +- 0.20
Del. quantity	
cm3/1000 strokes	: 25.0
Tolerance	
cm3/1000 strokes	: +- 2.5
Check tolerance	
cm3/1000S.	: +- 5.0
Spreed	
Tolerance	
cm3/1000 strokes	: 3.0
Check tolerance	
cm3/1000S.	: 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
<hr/>	
governor spring	
pre-tension	
click setting x	: 5.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1200
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm3/1000 strokes	: 123.0
Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 4.0
Spreed	

Tolerance	
cm3/1000 strokes	: 7.0
Check tolerance	
cm3/1000S.	: 11.0

CONTROL LEVER

control lever	
position degree	: 70.0
tolerance degree	: +- 4.0

control lever	
position degree	: 120.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 10.00
Rated speed rpm	: 1235
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 1280
Tolerance 1/min	: +- 15

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1400

LOW IDLE

control lever	
position degree	: 80.0
tolerance degree	: +- 4.0

control lever	
position degree	: 30.0
tolerance degree	: +- 4.0

Setting point w/out bumper spring

Rated speed rpm	: 325
rack travel mm	: 4.10

Testing:

Rated speed rpm	: 325
rack travel mm	: 4.60
Tolerance mm	: +- 0.10

rack travel mm	: 2.00
Rated speed rpm	: 390
Tolerance 1/min	: +- 30

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 11.00
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 11.00
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.00
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.60
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 490
rack travel mm : 1.10
Tolerance mm : ± 0.15

Pressure hPa : 290
rack travel mm : 0.25
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 136.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 10.00
Rated speed rpm : 1235
Tolerance 1/min : ± 5

LOW IDLE

Rated speed rpm : 325
rack travel mm : 4.60
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : ± 2.5
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.12.95
Test oil : ISO 4113
Combination No. : 0 402 046 850

Injection pump
Pump designation : PES6P120A320RS3320
EP type number : 0 412 026 763

Governor
Governor design. : RQV275...1000PA995
: -2
Governor no. : 0 421 813 940

Cust. part No. : CCEP-5134 66-211

Customer-spec. information
Customer : RVI
Motor : MIDR 063540 M/3
Power KW : 236.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 19.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.55

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 242.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.40
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.66
Tolerance mm : \pm 0.10

Rated speed rpm : 1086
guide sleeve
travel mm : 8.46
Tolerance mm : \pm 0.10

Rated speed rpm : 773
guide sleeve
travel mm : 6.09
Tolerance mm : \pm 0.20

Rated speed rpm : 343
guide sleeve
travel mm : 2.33
Tolerance mm : \pm 0.20

Rated speed rpm : 393
guide sleeve
travel mm : 2.99
Tolerance mm : \pm 0.20

Rated speed rpm : 490
guide sleeve
travel mm : 3.81
Tolerance mm : \pm 0.20

Rated speed rpm : 1370
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1180
Rack travel in mm : 11.40
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 242.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 306.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1075
Tolerance 1/min : \pm 5

rack travel mm : -8.55
Rated speed rpm : 1195
Tolerance 1/min : \pm 15

rack travel mm : -11.95
Tolerance mm : + 0.55
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 248.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.40
Tolerance mm : + 0.10

Rated speed rpm : 200
CRT mm max. : < -5.90

Rated speed rpm : 365

TORQUE CONTROL

Rated speed rpm : 600
Rated speed rpm : 1000
Tolerance mm : + 0.10
Rated speed rpm : 600
rack travel mm : -4.00
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -2.25
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 160
rack travel mm : -1.70
Tolerance mm : + 0.10

Pressure hPa : 280
rack travel mm : -0.75
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 114.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 156.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1075
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -7.40
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.95
Test oil : ISO 4113

Combination No. : 0 402 076 787

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV400...1050POA602
Governor no. : 0 421 833 483

Cust. part No. :

Customer-spec. information
Customer : FNH-GEOTECH
Motor : EP040B
Power KW : 176.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity min. L/h : 100
Tolerance L/h : ± 20.0

Test nozzle holder assembly : 1 688 901 103

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check tolerance °NW : ± 0.75

Start of delivery blocking

Check tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm :	11.25
Tolerance mm :	+ 0.05
<hr/>	
Del. quantity cm ³ /1000 strokes :	158.0
<hr/>	
Tolerance cm ³ /1000 strokes :	+ 1.0
<hr/>	
Check tolerance cm ³ /1000S. :	+ 5.0
<hr/>	
Spread Tolerance cm ³ /1000 strokes :	5.0
<hr/>	
Check tolerance cm ³ /1000S. :	9.0
<hr/>	
Rated speed rpm :	400
<hr/>	
Rack travel in mm :	5.00
Tolerance mm :	+ 0.20
Del. quantity cm ³ /1000 strokes :	26.0
Tolerance cm ³ /1000 strokes :	+ 3.0
Check tolerance cm ³ /1000S. :	+ 6.0
Spread Tolerance cm ³ /1000 strokes :	8.0
Check tolerance cm ³ /1000S. :	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	800
Rack travel in mm :	0.50
Tolerance mm :	+ 0.20
<hr/>	
governor spring pre-tension click setting x :	4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1050
Aneroid pressure hPa :	1600

Del. quantity cm ³ /1000 strokes :	158.0
Tolerance cm ³ /1000 strokes :	+ 1.0
Check tolerance cm ³ /1000S. :	+ 5.0
Spread Tolerance cm ³ /1000 strokes :	5.0
Check tolerance cm ³ /1000S. :	9.0

CONTROL LEVER

control lever position degree :	96.0
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RATED SPEED

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1320
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1165

ASSEMBLY GOVERNOR SETTING

Rated speed rpm :	1093
rack travel mm :	10.20
<hr/>	
Rated speed rpm :	1158
Tolerance 1/min :	+ 5
rack travel mm :	4.00
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1320
<hr/>	
Rated speed rpm :	1094
rack travel mm :	10.20
<hr/>	
Rated speed rpm :	1159
Tolerance 1/min :	+ 5
rack travel mm :	4.00
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55
<hr/>	
Rated speed rpm :	1095
rack travel mm :	10.20
<hr/>	
Rated speed rpm :	1160
Tolerance 1/min :	+ 5
rack travel mm :	4.00
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55

Rated speed rpm : 1096
rack travel mm : 10.20

Rated speed rpm : 1161
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1097
rack travel mm : 10.20

Rated speed rpm : 1162
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1098
rack travel mm : 10.20

Rated speed rpm : 1163
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 75.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.50

Testing:

Rated speed rpm : 400
rack travel mm : 5.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 535
Tolerance 1/min : + 50

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.25
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 12.40
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 12.50
Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 12.50
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.10
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 980
rack travel mm : 11.40
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 196.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 94.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 5.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.95
Test oil : ISO 4113

Combination No. : 0 402 076 788

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV400...1050POA603
Governor no. : 0 421 833 484

Cust. part No. :

Customer-spec. information
Customer : FNH-GEOTECH
Motor : EP 040 B
Power KW : 154.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5
Tolerance bar : +- 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : +- 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 3.60
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.30
Check
tolerance °NW : +- 0.75

Start of delivery blocking

Check
tolerance °NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm	:	10.45
Tolerance mm	:	± 0.05
<hr/>		
Del. quantity cm ³ /1000 strokes	:	136.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	± 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	± 5.0
<hr/>		
Spreed Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		
Rated speed rpm	:	400
<hr/>		
Rack travel in mm	:	5.00
Tolerance mm	:	± 0.20
Del. quantity cm ³ /1000 strokes	:	23.0
Tolerance cm ³ /1000 strokes	:	± 3.0
Check tolerance cm ³ /1000S.	:	± 6.0
Spreed Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	:	800
<hr/>		
Rack travel in mm	:	0.50
Tolerance mm	:	± 0.20
<hr/>		
governor spring pre-tension click setting x	:	5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1050
Aneroid pressure hPa	:	1500

Del. quantity cm ³ /1000 strokes	:	136.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 5.0
Spreed Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	76.0
tolerance degree	:	± 4.0

RATED SPEED

rack travel mm	:	0.85
Tolerance mm	:	± 0.55
Rated speed rpm	:	1320

rack travel mm	:	4.00
Rated speed rpm	:	1155

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	:	1093
rack travel mm	:	9.45

Rated speed rpm	:	1153
Tolerance 1/min	:	± 5
rack travel mm	:	4.00

rack travel mm	:	0.85
Tolerance mm	:	± 0.55

Rated speed rpm	:	1094
rack travel mm	:	9.45

Rated speed rpm	:	1154
Tolerance 1/min	:	± 5
rack travel mm	:	4.00

rack travel mm	:	0.85
Tolerance mm	:	± 0.55

Rated speed rpm	:	1095
rack travel mm	:	9.45

Rated speed rpm	:	1155
Tolerance 1/min	:	± 5
rack travel mm	:	4.00

rack travel mm	:	0.85
Tolerance mm	:	± 0.55

Rated speed rpm : 1096
rack travel mm : 9.45

Rated speed rpm : 1156
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1097
rack travel mm : 9.45

Rated speed rpm : 1157
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1098
rack travel mm : 9.45

Rated speed rpm : 1158
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 97.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.00

Testing:

Rated speed rpm : 400
rack travel mm : 4.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 535
Tolerance 1/min : + 50

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 10.45
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 11.30
Tolerance mm : + 0.10

Rated speed rpm : 600
rack travel mm : 11.35
Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.30
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.10
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 900
rack travel mm : 10.80
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 5.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.12.95
Test oil : ISO 4113

Combination No. : 0 402 640 817

Injection pump
Pump designation : PE12P120A52OLS7826
EP type number : 0 412 620 817

Governor
Governer design. : RQV350...1150PA870
: -4
Governer no. : 0 421 813 717

Cust. part No. : 0180745402

Customer-spec. information
Customer : MB-NFZ
Motor : OM 444 LA
Power KW : 736.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 1.00

Firing order : 12- 1- 5- 9- 8
: - 3- 4- 11- 10
: - 2- 6- 7

Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 15.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 306.0

<hr/>	
Tolerance	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 4.0
<hr/>	
Spread	
Tolerance	
cm ³ /1000 strokes	: 6.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 10.0
Rated speed rpm	: 350
<hr/>	
Rack travel in mm	: 5.60
Tolerance mm	: ± 0.30
Del. quantity	
cm ³ /1000 strokes	: 15.0
Tolerance	
cm ³ /1000 strokes	: ± 3.0
Check tolerance	
cm ³ /1000S.	: ± 6.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve	
travel mm	: 1.55
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1206
guide sleeve	
travel mm	: 8.15
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 600
guide sleeve	
travel mm	: 3.55
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 960
guide sleeve	
travel mm	: 5.55
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1291
guide sleeve	
travel mm	: 10.05

Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm	: 1275
<hr/>	
Rack travel in mm	: 16.50
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure	
hPa	: 1300
Del. quantity	
cm ³ /1000 strokes	: 306.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 10.0

CONTROL LEVER

control lever	
position degree	: 117.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 14.30
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1285
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1350

LOW IDLE

control lever	
position degree	: 66.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : + 0.10

Rated speed rpm : 250
CRT mm min. : > 7.30

Rated speed rpm : 475

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 15.30
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 15.40
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 15.30
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.45
Tolerance mm : + 0.15

Rated speed rpm : 500

Pressure hPa : 300
rack travel mm : 10.20
Tolerance mm : + 0.05

Pressure hPa : 1100
rack travel mm : 13.80
Tolerance mm : + 0.15

START CUT-OUT

Rated speed rpm : > 200
Rated speed rpm : < 310

Check speed 1/min : > 180

Check speed 1/min : < 330

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 315.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 15.0

Aneroid pressure
hPa : 1300
Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 234.5
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 15.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 124.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 15.0

BREAKAWAY

Rack travel in mm : 14.30
Rated speed rpm : 1195
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 331.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.12.95
Test oil : ISO 4113

Combination No. : 0 402 640 842

Injection pump
Pump designation : PE12P120A520/5RS7304
EP type number : 0 412 620 838

Governor
Governor design. : RQV300...550/1050PA1
: 093
Governor no. : 0 421 814 067

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : TBD234-FAUN

TEST BENCH REQUIREMENTS

Inlet line : 3.1,3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Overflow quantity
min. l/h : 170
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 19.50
Tolerance mm : + 1.50

Firing order : 1- 2- 9-10- 5- 6
: - 11- 12- 3- 4
: - 7- 8

Phasing : 0-30-60-90-120-150
: -180-210-240-270
: -300-330
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.60
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 235.0

Tolerance
cm³/1000 strokes : + 1.0

<hr/>	
Check tolerance	
cm ³ /1000S.	: + 4.0
<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes	: 6.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 6.75
Tolerance mm	: + 0.20
Del. quantity	
cm ³ /1000 strokes	: 38.0
Tolerance	
cm ³ /1000 strokes	: + 5.0
Check tolerance	
cm ³ /1000S.	: + 8.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.30
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1107
guide sleeve	
travel mm	: 6.75
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1050
guide sleeve	
travel mm	: 6.00
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 586
guide sleeve	
travel mm	: 5.55
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 636
guide sleeve	
travel mm	: 6.00
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 500

guide sleeve	
travel mm	: 6.00
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1260
guide sleeve	
travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1160
<hr/>	
Rack travel in mm	: 14.00
Tolerance mm	: + 1.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1250
Del. quantity	
cm ³ /1000 strokes	: 235.0
Tolerance	
cm ³ /1000 strokes	: + 1.0
Check tolerance	
cm ³ /1000S.	: + 4.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 51.0
tolerance degree	: + 4.0
<hr/>	
control lever	
position degree	: 115.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 13.70
Rated speed rpm	: 1095
Tolerance 1/min	: + 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1155
Tolerance 1/min	: + 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1300

LOW IDLE

control lever
position degree : 85.0
tolerance degree : ± 4.0

control lever
position degree : 20.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.75
Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm min. : > 8.80

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.60
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 13.60
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 14.70
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 2000
rack travel mm : 14.70
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.00
Tolerance mm : ± 0.20

Rated speed rpm : 500
Pressure hPa : 225
rack travel mm : 10.70
Tolerance mm : ± 0.25

Pressure hPa : 595
rack travel mm : 12.20
Tolerance mm : ± 0.05

Pressure hPa : 1250
rack travel mm : 13.60
Tolerance mm : ± 0.05

Pressure hPa : 1450
rack travel mm : 13.95
Tolerance mm : ± 0.25

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1250
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 234.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.70
Rated speed rpm : 1095
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 274.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.75
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.12.95
Test oil : ISO 4113

Combination No. : 0 402 646 606

Injection pump
Pump designation : PE6P120A720RS7188
: -100
EP type number : 0 412 626 925

Governor
Governer design. : RQV200...950PA725
: -10
Governer no. : 0 421 814 002

Cust. part No. : 1338073

Customer-spec. information
Customer : SCANIA
Motor : DSC 11 32

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde assembly : 1 688 901 104

Opening pressure bar : 251.5
Tolerance bar : ± 1.5

G03

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm. : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 214.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 4.70
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1140

Rack travel in mm : 9.50
Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 214.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 59.0
tolerance degree : + 4.0

control lever
position degree : 114.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.50
Rated speed rpm : 995
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1105
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 64.0
tolerance degree : + 4.0

control lever
position degree : 10.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : + 0.10

Rated speed rpm : 150
CRT mm min. : > 6.00

Rated speed rpm : 275

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.55
Tolerance mm : + 0.05

Rated speed rpm : 950
rack travel mm : 12.55

Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.55
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.40
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 270
rack travel mm : 11.00
Tolerance mm : \pm 0.15

Pressure hPa : 440
rack travel mm : 12.05
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 202.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.50
Rated speed rpm : 995
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.40
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.12.95
Test oil : ISO 4113
Combination No. : 0 402 646 650
Injection pump
Pump designation : PE6P130A720RS7354
EP type number : 0 412 636 835
Governor
Governor design. : RQV300...950PA1002
 : -2K
Governor no. : 0 421 815 434
Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8210.42.4000

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 2 417 413 076
Inlet press. bar : 2.5
Tolerance bar : +- 0.1
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 5.05
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 13.00
Tolerance mm : +- 0.50
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300
Tolerance : +- 0.30
Check
tolerance °NW : +- 0.50
Start of delivery mark
Check
tolerance °NW : +- 0.40
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950
Rack travel in mm : 13.10
Tolerance mm : +- 0.05
Del. quantity
cm3/1000 strokes : 274.0
Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.80
Tolerance mm : +- 0.20

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spreed
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve

travel mm : 1.65
Tolerance mm : +- 0.20

Rated speed rpm : 1010
guide sleeve

travel mm : 8.75
Tolerance mm : +- 0.15

Rated speed rpm : 755
guide sleeve

travel mm : 6.15
Tolerance mm : +- 0.25

Rated speed rpm : 500
guide sleeve

travel mm : 3.75
Tolerance mm : +- 0.25

Rated speed rpm : 1340
guide sleeve

travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1185

Rack travel in mm : 12.00

Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950

Aneroid pressure

hPa : 900

Del. quantity

cm³/1000 strokes : 274.0

Tolerance

cm³/1000 strokes : +- 1.0

Check tolerance

cm³/1000S. : +- 4.0

Spreed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 114.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.10

Rated speed rpm : 995

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 1110

Tolerance 1/min : +- 15

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 1300

LOW IDLE

control lever

position degree : 69.0

tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.80
Tolerance mm : ± 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 13.10
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 12.90
Tolerance mm : ± 0.10

Rated speed rpm : 550
rack travel mm : 12.10
Tolerance mm : ± 0.10

Rated speed rpm : 300
rack travel mm : 11.80
Tolerance mm : ± 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 950
Pressure hPa : 900
rack travel mm : 13.10
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 950
rack travel mm : 8.60
Tolerance mm : ± 0.20

Rated speed rpm : 950

Pressure hPa : 320
rack travel mm : 9.95
Tolerance mm : ± 0.20

Pressure hPa : 610
rack travel mm : 12.20
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 180
Rated speed rpm : < 220

Check
speed 1/min : > 160
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 286.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.10
Rated speed rpm : 995
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 4.80
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.12.95
Test oil : ISO 4113

Combination No. : 0 402 646 887

Injection pump
Pump designation : PE6P120A720RS7188
: -10
EP type number : 0 412 626 924

Governor
Governor design. : RQV200...950PA725-7
Governor no. : 0 421 813 803

Cust. part No. : 1333122

Customer-spec. information
Customer : SCANIA
Motor : DSC 11 23

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 190
Tolerance L/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.85
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes	: 252.0
<hr/>	
Tolerance	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 4.0
<hr/>	
Spread	
Tolerance	
cm ³ /1000 strokes	: 8.0
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Check tolerance	
cm ³ /1000S.	: 12.0
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Rated speed rpm	: 250
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Rack travel in mm	: 4.70
Tolerance mm	: ± 0.30
Del. quantity	
cm ³ /1000 strokes	: 16.0
Tolerance	
cm ³ /1000 strokes	: ± 3.0
Check tolerance	
cm ³ /1000S.	: ± 6.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 4.0
Check tolerance	
cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 1150
<hr/>	
Rack travel in mm	: 9.50
Tolerance mm	: ± 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure	
hPa	: -
Del. quantity	
cm ³ /1000 strokes	: 252.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spread	

Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

CONTROL LEVER

control lever	
position degree	: 60.0
tolerance degree	: ± 4.0

control lever	
position degree	: 114.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.80
Rated speed rpm	: 995
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1125
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1250

LOW IDLE

control lever	
position degree	: 64.0
tolerance degree	: ± 4.0

control lever	
position degree	: 10.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 250
rack travel mm	: 4.70
Tolerance mm	: ± 0.10

Rated speed rpm	: 150
CRT mm min.	: > 6.00

Rated speed rpm	: 300
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TORQUE CONTROL

Rated speed rpm	: 950
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rack travel mm : 13.85
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.85
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.40
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 270
rack travel mm : 11.00
Tolerance mm : ± 0.15

Pressure hPa : 440
rack travel mm : 12.05
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 237.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.80
Rated speed rpm : 995
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.40
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.12.95
Test oil : ISO 4113

Combination No. : 0 402 646 937

Injection pump
Pump designation : PE6P120A720RS7188
: -100
EP type number : 0 412 626 925

Governor
Governor design. : RQV200...950PA725-7
Governor no. : 0 421 813 803

Cust. part No. : 1333121

Customer-spec. information
Customer : SCANIA
Motor : DSC11 21

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 104

Opening pressure bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.75
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 220.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 4.70
Tolerance mm : +- 0.30

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1150

Rack travel in mm : 9.50
Tolerance mm : +- 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 220.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : +- 4.0

control lever
position degree : 60.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.70
Rated speed rpm : 995
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1120
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 10.0
tolerance degree : +- 4.0

control lever
position degree : 62.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : +- 0.10

Rated speed rpm : 150

CRT mm min. : > 6.00

Rated speed rpm : 275

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 12.75
Tolerance mm : +- 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.75
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.40
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 270
rack travel mm : 11.00
Tolerance mm : ± 0.15

Pressure hPa : 440
rack travel mm : 12.05
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.70

Rated speed rpm : 995
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.40
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.12.95
Test oil : ISO 4113
Combination No. : 0 402 648 793
Injection pump
Pump designation : PE8P120A320LS7873
EP type number : 0 412 628 880

Governor
Governor design. : RQ300/1050PA1268
Governor no. : 0 421 801 802

Cust. part No. : 04223118KY0165-17

Customer-spec. information
Customer : KHD
Motor : BF8M1015/C
Power kW : 400.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 8- 7- 2- 6
 : - 5- 4- 3
Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 14.00
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 340.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.00
Tolerance mm : + 0.10

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.66
Tolerance mm : + 0.20

Rated speed rpm : 1106
guide sleeve
travel mm : 6.53
Tolerance mm : + 0.15

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 458
guide sleeve
travel mm : 4.21
Tolerance mm : + 0.10

Rated speed rpm : 580
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1290
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1149

Rack travel in mm : 13.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 340.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance

cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.00
Rated speed rpm : 1100
Tolerance 1/min : + 10

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1280

LOW IDLE

control lever
position degree : 72.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 449
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 7.26

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.00
Tolerance mm : + 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1600
rack travel mm : 14.00
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.40
Tolerance mm : + 0.20

Rated speed rpm : 400

Pressure hPa : 570
rack travel mm : 10.50
Tolerance mm : + 0.20

Pressure hPa : 1100
rack travel mm : 13.00
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80

Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 13.00
Rated speed rpm : 1100
Tolerance 1/min : + 10

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.45
Tolerance mm : + 0.75
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : + 0.10
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.95
Test oil : ISO 4113

Combination No. : 0 402 736 888

Injection pump
Pump designation : PES6P120A120RS7390
EP type number : 0 412 726 945

Governor
Governor design. : RQV350...1100PA1237K
Governor no. : 0 421 815 475

Cust. part No. : 3282740

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity min. l/h : 90
Tolerance l/h : ± 20.0

Test nozzle holder assembly : 1 688 901 101

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.60

Tolerance mm : \pm 0.05

 Del. quantity
 cm³/1000 strokes : 164.0

 Tolerance
 cm³/1000 strokes : \pm 1.0

 Check tolerance
 cm³/1000S. : \pm 4.0

 Spreed
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 350

 Rack travel in mm : 4.80
 Tolerance mm : \pm 0.30
 Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 7.0
 Check tolerance
 cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.93
 Tolerance mm : \pm 0.20

 Rated speed rpm : 1159
 guide sleeve
 travel mm : 10.27
 Tolerance mm : \pm 0.15

 Rated speed rpm : 710
 guide sleeve
 travel mm : 5.79
 Tolerance mm : \pm 0.25

 Rated speed rpm : 420
 guide sleeve
 travel mm : 4.28
 Tolerance mm : \pm 0.25

Rated speed rpm : 1380
 guide sleeve
 travel mm : 13.50
 Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1200
 Rack travel in mm : 11.60
 Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 164.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 69.0
 tolerance degree : \pm 4.0

control lever
 position degree : 123.0
 tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.60
 Rated speed rpm : 1145
 Tolerance 1/min : \pm 5

rack travel mm : 4.00
 Rated speed rpm : 1230
 Tolerance 1/min : \pm 15

rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

control lever
position degree : 21.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.80
Tolerance mm : + 0.10

Rated speed rpm : 250
CRT mm min. : > 7.70

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.60
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 12.30
Tolerance mm : + 0.10

Rated speed rpm : 900
rack travel mm : 12.35
Tolerance mm : + 0.15

Rated speed rpm : 600
rack travel mm : 12.00
Tolerance mm : + 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500
rack travel mm : 12.60
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100

rack travel mm : 10.25
Tolerance mm : + 0.20

Rated speed rpm : 1100

Pressure hPa : 170
rack travel mm : 11.10
Tolerance mm : + 0.20

Pressure hPa : 330
rack travel mm : 12.10
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 280

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 107.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 11.60
Rated speed rpm : 1145
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 255.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 4.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.95
Test oil : ISO 4113

Combination No. : 0 402 736 889

Injection pump
Pump designation : PES6P120A120RS739D
EP type number : 0 412 726 945

Governor
Governor design. : RQV350...1100PA1244K
Governor no. : 0 421 815 477

Cust. part No. : 3282739

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 90
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.00

Tolerance mm : +- 0.05

Del. quantity
cm3/1000 strokes : 173.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.60
Tolerance mm : +- 0.30
Del. quantity
cm3/1000 strokes : 18.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 5.0
Spread
Tolerance
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.93
Tolerance mm : +- 0.20

Rated speed rpm : 1159
guide sleeve
travel mm : 10.27
Tolerance mm : +- 0.15

Rated speed rpm : 710
guide sleeve
travel mm : 5.79
Tolerance mm : +- 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 4.28
Tolerance mm : +- 0.25

Rated speed rpm : 1380
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1195

Rack travel in mm : 12.00
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 173.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 68.0
tolerance degree : +- 4.0

control lever
position degree : 122.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.00
Rated speed rpm : 1145
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1230
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

control lever
position degree : 20.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.60
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 7.50

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.00
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 13.15
Tolerance mm : ± 0.10

Rated speed rpm : 500
rack travel mm : 12.25
Tolerance mm : ± 0.15

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 700
Pressure hPa : 1500
rack travel mm : 13.20
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 700
rack travel mm : 10.20
Tolerance mm : ± 0.20

Rated speed rpm : 700

Pressure hPa : 140
rack travel mm : 11.10
Tolerance mm : ± 0.20

Pressure hPa : 300
rack travel mm : 12.60
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 171.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1145
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 255.0
Tolerance
cm³/1000 strokes : +- 20.0
Check tolerance
cm³/1000S. : +- 24.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 4.60
Tolerance mm : +- 0.30
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.95
Test oil : ISO 4113

Combination No. : 0 402 736 892

Injection pump
Pump designation : PES6P120A120RS7400
EP type number : 0 412 726 950

Governor
Governor design. : RQV350...1100PA1244
 : -1K
Governor no. : 0 421 815 488

Cust. part No. : 3282610

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 221.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5
Tolerance l/h : + 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.30
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.60
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 209.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.80
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.93
Tolerance mm : + 0.20

Rated speed rpm : 1159
guide sleeve
travel mm : 10.28
Tolerance mm : + 0.15

Rated speed rpm : 710
guide sleeve
travel mm : 5.80
Tolerance mm : + 0.25

Rated speed rpm : 430
guide sleeve
travel mm : 4.33
Tolerance mm : + 0.25

Rated speed rpm : 1380

guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1220
Rack travel in mm : 13.60
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 66.0
tolerance degree : + 4.0

control lever
position degree : 120.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.60
Rated speed rpm : 1145
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1245
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

control lever
position degree : 20.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.80
Tolerance mm : ± 0.10

Rated speed rpm : 250
CRT mm min. : > 8.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.60
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 14.05
Tolerance mm : ± 0.10

Rated speed rpm : 900
rack travel mm : 14.35
Tolerance mm : ± 0.15

Rated speed rpm : 600
rack travel mm : 13.95
Tolerance mm : ± 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500
rack travel mm : 14.60
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 10.45
Tolerance mm : ± 0.20

Rated speed rpm : 1100

Pressure hPa : 880
rack travel mm : 13.20
Tolerance mm : ± 0.20

Pressure hPa : 240
rack travel mm : 11.20
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 280

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 198.0

Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 111.0

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.60
Rated speed rpm : 1145
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 255.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 4.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.95
Test oil : ISO 4113

Combination No. : 0 402 736 893

Injection pump
Pump designation : PES6P120A120RS7400
EP type number : 0 412 726 950

Governor
Governor design. : RQV350...1100PA1244
: -2K
Governor no. : 0 421 815 489

Cust. part No. : 3282609

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 206.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm	:	14.80
Tolerance mm	:	+ 0.05
<hr/>		
Del. quantity cm ³ /1000 strokes	:	211.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	+ 4.0
<hr/>		
Spread Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		
Rated speed rpm	:	350
<hr/>		
Rack travel in mm	:	5.10
Tolerance mm	:	+ 0.30
Del. quantity cm ³ /1000 strokes	:	25.0
Tolerance cm ³ /1000 strokes	:	+ 3.0
Check tolerance cm ³ /1000S.	:	+ 5.0
Spread Tolerance cm ³ /1000 strokes	:	7.0
Check tolerance cm ³ /1000S.	:	11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	350
guide sleeve travel mm	:	1.93
Tolerance mm	:	+ 0.20
<hr/>		
Rated speed rpm	:	1159
guide sleeve travel mm	:	10.28
Tolerance mm	:	+ 0.15
<hr/>		
Rated speed rpm	:	710
guide sleeve travel mm	:	5.79
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	500

guide sleeve travel mm	:	4.70
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1380
guide sleeve travel mm	:	13.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	:	1215
<hr/>		
Rack travel in mm	:	13.30
Tolerance mm	:	+ 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1050
Aneroid pressure hPa	:	1500
Del. quantity cm ³ /1000 strokes	:	211.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 4.0
Spread Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	66.0
tolerance degree	:	+ 4.0
<hr/>		
control lever position degree	:	122.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	13.80
Rated speed rpm	:	1145
Tolerance 1/min	:	+ 5
<hr/>		
rack travel mm	:	4.00
Rated speed rpm	:	1245
Tolerance 1/min	:	+ 15
<hr/>		
rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1350

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

control lever
position degree : 20.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 8.20

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 650
rack travel mm : 14.20
Tolerance mm : + 0.10

Rated speed rpm : 900
rack travel mm : 14.70
Tolerance mm : + 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1500
rack travel mm : 14.80
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 10.40
Tolerance mm : + 0.20

Rated speed rpm : 1050
Pressure hPa : 880
rack travel mm : 13.20
Tolerance mm : + 0.20

Pressure hPa : 240
rack travel mm : 11.20
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 280

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 197.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000s. : 16.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 111.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 4.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1145
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 265.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000s. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.95
Test oil : ISO 4113

Combination No. : 0 402 736 894

Injection pump
Pump designation : PES6P120A12ORS7400
EP type number : 0 412 726 950

Governor
Governor design. : RQV350...1200PA1261
Governor no. : 0 421 815 495

Cust. part No. : 3282766

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.95

Tolerance mm : +- 0.05

 Del. quantity
 cm3/1000 strokes : 190.0

 Tolerance
 cm3/1000 strokes : +- 1.0

 Check tolerance
 cm3/1000S. : +- 4.0

 Spreed
 Tolerance
 cm3/1000 strokes : 5.0

 Check tolerance
 cm3/1000S. : 9.0

 Rated speed rpm : 350

 Rack travel in mm : 5.10
 Tolerance mm : +- 0.30
 Del. quantity
 cm3/1000 strokes : 25.0
 Tolerance
 cm3/1000 strokes : +- 3.0
 Check tolerance
 cm3/1000S. : +- 5.0
 Spreed
 Tolerance
 cm3/1000 strokes : 7.0
 Check tolerance
 cm3/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.93
 Tolerance mm : +- 0.20

 Rated speed rpm : 1258
 guide sleeve
 travel mm : 10.14
 Tolerance mm : +- 0.15

 Rated speed rpm : 766
 guide sleeve
 travel mm : 5.91
 Tolerance mm : +- 0.25

 Rated speed rpm : 450
 guide sleeve
 travel mm : 4.49
 Tolerance mm : +- 0.25

Rated speed rpm : 1520
 guide sleeve
 travel mm : 13.50
 Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1340
 Rack travel in mm : 12.60
 Tolerance mm : +- 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 190.0
 Tolerance
 cm3/1000 strokes : +- 1.0
 Check tolerance
 cm3/1000S. : +- 4.0
 Spreed
 Tolerance
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 66.0
 tolerance degree : +- 4.0

control lever
 position degree : 120.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.90
 Rated speed rpm : 1245
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1360
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

control lever
position degree : 20.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 8.20

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.95
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 13.40
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : 14.05
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 13.95
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1150
rack travel mm : 10.40
Tolerance mm : ± 0.20

Rated speed rpm : 1150

H10

Pressure hPa : 880
rack travel mm : 13.20
Tolerance mm : ± 0.20

Pressure hPa : 240
rack travel mm : 11.20
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 280

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000s. : 16.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 111.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.90
Rated speed rpm : 1245
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 265.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.12.95
Test oil : ISO 4113
Combination No. : 0 403 276 010
Injection pump
Pump designation : PES6MW100/72ORS1526
EP type number : 0 413 206 025
Governor
Governor design. : RSV350...1200MWOA355
: -3
Governor no. : 0 420 085 275
Cust. part No. : 0260748202

Customer-spec. information
Customer : MB-NFZ
Motor : OM366LA
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.00
Tolerance mm : ± 1.00
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200
Rack travel in mm : 11.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 96.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
 cm³/1000S. : 6.0
 Rated speed rpm : 350
 Rack travel in mm : 3.50
 Tolerance mm : ± 0.30
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.65
 Tolerance mm : ± 0.35
 governor spring
 pre-tension
 click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 96.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

CONTROL LEVER

control lever
 position degree : 100.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 1.00
 Tolerance mm : ± 0.70
 Rated speed rpm : 1400

rack travel mm : 4.00
 Rated speed rpm : 1315

rack travel mm : 10.15
 Rated speed rpm : 1245
 Tolerance 1/min : ± 5

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1240
 rack travel mm : 10.15

Rated speed rpm : 1300
 Tolerance 1/min : ± 4
 rack travel mm : 4.00

Rated speed rpm : 1241
 rack travel mm : 10.15

Rated speed rpm : 1301
 Tolerance 1/min : ± 4
 rack travel mm : 4.00

Rated speed rpm : 1242
 rack travel mm : 10.15

Rated speed rpm : 1302
 Tolerance 1/min : ± 4
 rack travel mm : 4.00

Rated speed rpm : 1243
 rack travel mm : 10.15

Rated speed rpm : 1303
 Tolerance 1/min : ± 4
 rack travel mm : 4.00

Rated speed rpm : 1244
 rack travel mm : 10.15

Rated speed rpm : 1304
 Tolerance 1/min : ± 4
 rack travel mm : 4.00

Rated speed rpm : 1245
 rack travel mm : 10.15

Rated speed rpm : 1305
 Tolerance 1/min : ± 4

rack travel mm : 4.00

LOW IDLE

Testing:

Rated speed rpm : 350
rack travel mm : 3.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 430
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 11.15
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 11.15
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 11.15
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 400
rack travel mm : 1.00
Tolerance mm : ± 0.10

Pressure hPa : 300
rack travel mm : 0.50
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 3.50
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 5.5

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 28.12.95
Test oil : ISO 4113
Combination No. : 0 400 463 121
Injection pump
Pump designation : PES3A80D410/3RS1324
EP type number : 0 410 483 017
Governor
Governor design. : RSV325...900A7C602
: -4L
Governor no. : 0 420 232 604
Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F3L912

TEST BENCH REQUIREMENTS

Inlet line : 1.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 2
Phasing : 0-120-240

BASIC SETTING

Rated speed rpm : 880
Rack travel in mm : 11.20
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 50.5
Tolerance
cm3/1000 strokes : ± 0.5
Check tolerance
cm3/1000S. : ± 2.0
Speed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 4.0

Rated speed rpm : 325
Rack travel in mm : 8.40
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.50
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 880
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 925
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 960
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1100

rack travel mm : 4.00
Rated speed rpm : 975

LOW IDLE

control lever
position degree : 77.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 7.90

Testing:

Rated speed rpm : 325
rack travel mm : 8.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 880
rack travel mm : 11.20
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 11.25
Tolerance mm : + 0.10

BREAKAWAY

Rack travel in mm : 10.20
Rated speed rpm : 925
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
rack travel mm : 8.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.01.96
Test oil : ISO 4113
Combination No. : 0 400 876 425
Injection pump
Pump designation : PES6A95D410RS2864
EP type number : 0 410 896 888
Governor
Governor design. : RSV400...1050A2C2263
: -7L
Governor no. : 0 420 232 606
Cust. part No. : 87 800 861

Customer-spec. information
Customer : FNH-GEOTECH
Motor : 7.5 L
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 800
Rack travel in mm : 14.10
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 151.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 650
 Rack travel in mm : 4.60
 Tolerance mm : +- 0.10
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : +- 2.0
 Check tolerance
 cm³/1000S. : +- 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : +- 0.20
 governor spring
 pre-tension
 click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 151.0
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 100.0
 tolerance degree : +- 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1093
 rack travel mm : 11.60
 Rated speed rpm : 1128
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1094
 rack travel mm : 11.60
 Rated speed rpm : 1129
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1095
 rack travel mm : 11.60
 Rated speed rpm : 1130
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1096
 rack travel mm : 11.60
 Rated speed rpm : 1131
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1097
 rack travel mm : 11.60
 Rated speed rpm : 1132
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1098
 rack travel mm : 11.60
 Rated speed rpm : 1133
 Tolerance 1/min : +- 5
 rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55

LOW IDLE

control lever
position degree : 78.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.60
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 740
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 800
rack travel mm : 14.10
Tolerance mm : ± 0.10

Rated speed rpm : 500
rack travel mm : 14.15
Tolerance mm : ± 0.10

Rated speed rpm : 1050
rack travel mm : 11.90
Tolerance mm : ± 0.05

Rated speed rpm : 1050
rack travel mm : 12.60
Tolerance mm : ± 0.10

Rated speed rpm : 950
rack travel mm : 13.35
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.15
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 7.80
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 775
rack travel mm : 13.50
Tolerance mm : ± 0.05

Pressure hPa : 520
rack travel mm : 11.10
Tolerance mm : ± 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 70.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : ± 8.0
Check tolerance
cm³/1000S. : ± 11.0

LOW IDLE

Rated speed rpm : 650
rack travel mm : 4.60
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.08.95
Test oil : ISO 4113
Combination No. : 0 401 846 959
Injection pump
Pump designation : PE6P120A72ORS3293
EP type number : 0 411 826 801
Governor
Governor design. : RQV225...1000PA1016
: -6
Governor no. : 0 421 813 971
Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8215.22.400

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 14.65
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 218.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1110

Rack travel in mm : 13.20
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 218.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.60
Rated speed rpm : 1045
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1145
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 79.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 375
rack travel mm : 7.30
Tolerance mm : ± 0.10

Rated speed rpm : 300
CRT mm min. : > 9.50
Rated speed rpm : 440

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 14.65
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 14.65
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 14.65
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 12.00
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 200
rack travel mm : 12.40
Tolerance mm : + 0.20

Pressure hPa : 260
rack travel mm : 13.45
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 226.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Check tolerance
cm³/1000S. : 8.0

BREAKAWAY

Rack travel in mm : 13.60
Rated speed rpm : 1045
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.01.96
Test oil : ISO 4113
Combination No. : 0 402 746 949
Injection pump
Pump designation : PES6P120A720RS7224
: -2
EP type number : 0 412 726 893
Governor
Governor design. : RQV275...1100PA975
: -3K
Governor no. : 0 421 815 350
Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8460.41.406

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 2 417 413 076
Inlet press. bar : 2.5
Tolerance bar : +- 0.1
Overflow quantity
min. L/h : 140
Tolerance L/h : +- 20.0
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 5.15
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.30
Check
tolerance °NW : +- 0.50
Start of delivery mark
Check
tolerance °NW : +- 0.40
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 12.75
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 218.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.30
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 1.90
Tolerance mm : + 0.20

Rated speed rpm : 1145
guide sleeve
travel mm : 10.40
Tolerance mm : + 0.15

Rated speed rpm : 750
guide sleeve
travel mm : 6.10
Tolerance mm : + 0.25

Rated speed rpm : 430
guide sleeve
travel mm : 3.60
Tolerance mm : + 0.25

Rated speed rpm : 1360

guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1235
Rack travel in mm : 10.30
Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 218.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.70
Rated speed rpm : 1160
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1245
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 5.30
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 7.00

Rated speed rpm : 335

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.75
Tolerance mm : ± 0.05

Rated speed rpm : 900
rack travel mm : 12.75
Tolerance mm : ± 0.10

Rated speed rpm : 650
rack travel mm : 12.00
Tolerance mm : ± 0.10

Rated speed rpm : 300
rack travel mm : 11.20
Tolerance mm : ± 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200
rack travel mm : 12.75
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 900
rack travel mm : 7.50
Tolerance mm : ± 0.20

Rated speed rpm : 900
Pressure hPa : 380
rack travel mm : 9.00
Tolerance mm : ± 0.20

Pressure hPa : 710
rack travel mm : 11.50
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 170
Rated speed rpm : < 220

Check speed 1/min : > 150
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1200
Rated speed rpm : 900
Del. quantity cm³/1000 strokes : 231.0
Tolerance cm³/1000 strokes : ± 3.0
Check tolerance cm³/1000s. : ± 6.0

Aneroid pressure hPa : 1200
Rated speed rpm : 650
Del. quantity cm³/1000 strokes : 238.0
Tolerance cm³/1000 strokes : ± 3.0
Check tolerance cm³/1000s. : ± 6.0

Aneroid pressure hPa : -
Rated speed rpm : 650
Del. quantity cm³/1000 strokes : 126.0
Tolerance cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000s. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.70
Rated speed rpm : 1160
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 140.0

Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : 5.30
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.12.94
Test oil : ISO 4113
Combination No. : 0 402 746 949A
Injection pump
Pump designation : PES6P120A720RS7224
: -2
EP type number : 0 412 726 893
Governor
Governor design. : RQV275...1100PA975
: -3K
Governor no. : 0 421 815 350
Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8460.41.406
Power KW : 253.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5

J02

Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 5.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Check
tolerance °NW : ± 0.40
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 11.75
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes :	195.0
<hr/>	
Tolerance	
cm ³ /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	+ 4.0
<hr/>	
Speed	
Tolerance	
cm ³ /1000 strokes :	5.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	9.0
<hr/>	
Rated speed rpm :	275
<hr/>	
Rack travel in mm :	5.50
Tolerance mm :	+ 0.20
Del. quantity	
cm ³ /1000 strokes :	26.0
Tolerance	
cm ³ /1000 strokes :	+ 3.0
Check tolerance	
cm ³ /1000S. :	+ 6.0
Speed	
Tolerance	
cm ³ /1000 strokes :	8.0
Check tolerance	
cm ³ /1000S. :	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	275
guide sleeve	
travel mm :	2.00
Tolerance mm :	+ 0.20
<hr/>	
Rated speed rpm :	1155
guide sleeve	
travel mm :	10.55
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	764
guide sleeve	
travel mm :	6.24
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	430
guide sleeve	
travel mm :	3.63
Tolerance mm :	+ 0.25

Rated speed rpm :	1350
guide sleeve	
travel mm :	13.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	1225
Rack travel in mm :	10.00
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1100
Aneroid pressure	
hPa :	1200
Del. quantity	
cm ³ /1000 strokes :	195.0
Tolerance	
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S. :	+ 4.0
Speed	
Tolerance	
cm ³ /1000 strokes :	5.0
Check tolerance	
cm ³ /1000S. :	9.0

CONTROL LEVER

control lever	
position degree :	119.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.70
Rated speed rpm :	1145
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1215
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1350

LOW IDLE

control lever	
position degree :	66.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 5.50
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 6.70

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.75
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 11.75
Tolerance mm : + 0.10

Rated speed rpm : 500
rack travel mm : 10.95
Tolerance mm : + 0.15

Rated speed rpm : 350
rack travel mm : 11.40
Tolerance mm : + 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 11.75
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 360
rack travel mm : 8.70
Tolerance mm : + 0.20

Pressure hPa : 600
rack travel mm : 10.85
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 170

Rated speed rpm : < 220

Check
speed 1/min : > 150

Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 10.70
Rated speed rpm : 1145
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : 5.50
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.01.96
Test oil : ISO 4113

Combination No. : 0 402 746 950

Injection pump
Pump designation : PES6P120A720RS7224
: -2
EP type number : 0 412 726 893

Governor
Governor design. : RQV275...1100PA975
: -4K
Governor no. : 0 421 815 351

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8460.41.320

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

J06

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Check
tolerance °NW : ± 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.45
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 192.0
<hr/>	
Tolerance cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: ± 4.0
<hr/>	
Spread Tolerance cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance cm ³ /1000S.	: 9.0
Rated speed rpm	: 275
Rack travel in mm	: 5.70
Tolerance mm	: ± 0.20
Del. quantity cm ³ /1000 strokes	: 30.0
Tolerance cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 6.0
Spread Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve travel mm	: 1.90
Tolerance mm	: ± 0.20
Rated speed rpm	: 1145
guide sleeve travel mm	: 10.40
Tolerance mm	: ± 0.15
Rated speed rpm	: 750
guide sleeve travel mm	: 6.10
Tolerance mm	: ± 0.25
Rated speed rpm	: 430
guide sleeve travel mm	: 3.60
Tolerance mm	: ± 0.25
Rated speed rpm	: 1360

guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1235
Rack travel in mm	: 10.30
Tolerance mm	: ± 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 1200
Del. quantity cm ³ /1000 strokes	: 192.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 120.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 10.40
Rated speed rpm	: 1170
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1240
Tolerance 1/min	: ± 15
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1350

LOW IDLE

control lever position degree	: 73.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 5.70
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 7.20

Rated speed rpm : 335

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.45
Tolerance mm : + 0.05

Rated speed rpm : 900
rack travel mm : 11.10
Tolerance mm : + 0.10

Rated speed rpm : 650
rack travel mm : 10.20
Tolerance mm : + 0.15

Rated speed rpm : 400
rack travel mm : 9.60
Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 11.45
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 7.80
Tolerance mm : + 0.20

Rated speed rpm : 1100

Pressure hPa : 340
rack travel mm : 8.70
Tolerance mm : + 0.20

Pressure hPa : 570
rack travel mm : 10.55
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 170
Rated speed rpm : < 220

Check
speed 1/min : > 150
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 189.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 126.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 4.0

BREAKAWAY

Rack travel in mm : 10.40
Rated speed rpm : 1170
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 140.0

Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : 5.70
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.11.94
Test oil : ISO 4113

Combination No. : 0 402 746 950A

Injection pump
Pump designation : PES6P120A720RS7224
 : -2
EP type number :

Governor
Governor design. : RQV275...1100PA975
 : -4K
Governor no. :

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8460.41.320

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Check
tolerance °NW : ± 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.65
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes	: 168.0
<hr/>	
Tolerance	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 4.0
<hr/>	
Speed	
Tolerance	
cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.90
Tolerance mm	: ± 0.20

Rated speed rpm	: 1145
guide sleeve	
travel mm	: 10.40
Tolerance mm	: ± 0.15

Rated speed rpm	: 750
guide sleeve	
travel mm	: 6.10
Tolerance mm	: ± 0.25

Rated speed rpm	: 430
guide sleeve	
travel mm	: 3.60
Tolerance mm	: ± 0.25

Rated speed rpm	: 1360
guide sleeve	
travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1235
Rack travel in mm	: 10.30
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm ³ /1000 strokes	: 168.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Speed	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 120.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 10.30
Rated speed rpm	: 1170
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1235
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1350

LOW IDLE

control lever	
position degree	: 76.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 275
rack travel mm	: 5.30
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
CRT mm min.	: > 6.80

Rated speed rpm	: 335
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TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.65
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 9.50
Tolerance mm : + 0.10

Rated speed rpm : 900
rack travel mm : 10.20
Tolerance mm : + 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 10.65
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 1100
Pressure hPa : 420
rack travel mm : 8.40
Tolerance mm : + 0.20

Pressure hPa : 600
rack travel mm : 10.05
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 170
Rated speed rpm : < 220

Check speed 1/min : > 150
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 163.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 10.30
Rated speed rpm : 1170
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

End of test specification sheet

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 21.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/10F2000R697
Type number : 0 460 404 088
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8140.67.2585

Power KW: 60

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: 0.2
> (from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 2.10...2.30
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 6.00...6.60
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1200
Del. quantity cm3/
> 1000S.: 42.00...43.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
> 1000S.: 12.00...16.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2300
Del. quantity cm3/
> 1000S.: 23.00...27.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.00...110.00
mind> 1000S.: 70.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1200
Charge press hPa: 12
Inj.-qty. cm3/
difference> 1000S.: -15.0...21.0 *
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1200
TD-travel
difference> mm: -0.7...0.9 *
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1200
TD travel mm: 2.10...2.30
> mm: (1.60...2.80)
electromagnet>Volt: 12
2nd speed 1/min: 1800
TD travel mm: 6.00...6.60
> mm: (5.60...7.00)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1600
TD travel mm: 4.50...5.30
> mm: (4.20...5.60)
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 2100
TD travel mm: 7.00...7.80
> mm: (6.70...8.10)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump pressure> bar: 4.10...4.70
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1200
Supply-pump pressure> bar: 6.00...6.60
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2100
Supply-pump pressure> bar: 8.50...9.10
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet>Volt: 12
Overflow quantity> cm3/10s: 41.70...86.10
(26.70...101.10)
2nd speed 1/min: 2100
Shutoff
electromagnet>Volt: 12
Overflow quantity> cm3/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2600

Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 0.00...3.00
> 1000s.: -
2nd speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.0...15.0
> 1000s.: -
3rd speed 1/min: 2300
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 23.0...27.0
> 1000s.: (19.0...31.0)
4th speed 1/min: 2000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 39.5...42.5
> 1000s.: (38.5...43.5)
5th speed 1/min: 1500
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 40.50...43.50
> 1000s.: (39.50...44.50)
6th speed 1/min: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 42.0...43.0
> 1000s.: (40.5...44.5)
7th speed 1/min: 600
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 36.0...40.0
> 1000s.: (35.0...41.0)

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm3/: 0.00...3.00
> 1000s.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 12.00...16.00
> 1000s.: (9.00...19.00)
Dispersion cm3/: 2.5
> 1000s.: (2.5)
2nd speed 1/min: 465
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 0.00...3.00
> 1000s.: (0.00...3.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1200
Inj.-qty. cm3/ : -13.0..15.0 #
difference> 1000s.: -

Shutoff

electromagnet>Volt: 12

2nd speed 1/min: 1200

Inj.-qty. cm3/: 0.00...3.00 "
difference> 1000s.: -

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 1200
TD-travel : -0.6...1.4 "

difference> mm: -

Shutoff

electromagnet>Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1200

Supply pump-

pressure > : -0.1...0.3 #

difference> bar: -

Shutoff

electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.

terza fermo della portata

stop (EGR set)

scarico) (ARF)

gaz d'échappement-ARF)

Spacing mm: 12.0

1st speed 1/min: 1200

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 31.0...32.0

> 1000s.: (29.0...34.0)

Automatic starting fuel delivery:

1st speed 1/min: 300

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 55.00...85.00

> 1000s.: (55.00...85.00)

2nd speed 1/min: 500

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 25.00...45.00

> 1000s.: (25.00...45.00)

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 70.00...110.00

> 1000s.: (70.00...110.00)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

KF mm: 5.6...6.0

MS mm: 1.6...2.0

FH mm: KSB 10.0

TLA-E mm: 9.0

XK mm: SPALTMAB

XL mm: A =0.8..3.0

Ya mm: 42.9...44.9

Yb mm: 36.0...44.0

Remarks:

:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR
Edition : 12.02.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F2000R624-1
Type number : 0 460 414 123
Customer Part-No. :

Customer-specific information
Customer : FORD SWISS

Engine : 2.5L DI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 114

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery block
Piston stroke mm: 0.52
> mm: +-0.05
Outlet > : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.60...2.80
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 7.10...7.70
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 28.30...28.70 F
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
> 1000S.: 9.00...11.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.0
> 1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 2200
Del. quantity cm3/
> 1000S.: 25.00...27.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.0
> 1000S.: (4.0)

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...65.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 1.10...1.90
> mm: (0.60...2.40)
electromagnet>Volt: 12
2nd speed 1/min: 1250
TD travel mm: 2.60...2.80
> mm: (2.10...3.30)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
TD travel mm: 5.60...6.40

> mm: (5.10...6.90)
 Shutoff
 electromagnet>Volt: 12
 Supply-pump pressure characteristic:
 1st speed 1/min: 500
 Supply-pump
 pressure> bar: 5.40...6.00
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1150
 Supply-pump
 pressure> bar: 6.90...7.50
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1250
 Supply-pump
 pressure> bar: 7.10...7.70
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 2000
 Supply-pump
 pressure> bar: 8.70...9.30
 Shutoff
 electromagnet>Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12
 Overflow : 97.30...141.70
 quantity> cm3/10s: (82.30...156.70)
 2nd speed 1/min: 1950
 Shutoff
 electromagnet>Volt: 12
 Overflow : 115.30...184.80
 quantity> cm3/10s: (100.30...199.80)
 Delivery-quant. and breakaway char.:
 1st speed 1/min: 1950
 HBA-stroke mm: 7.2
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 40.3...42.7 D
 > 1000s.: (39.0...44.0) D
 2nd speed 1/min: 2400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...5.00
 > 1000s.: -
 3rd speed 1/min: 2300
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 9.00...15.00
 > 1000s.: (6.00...18.00)
 4th speed 1/min: 2200

Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 25.00...27.00
 > 1000s.: (21.00...31.00)
 6th speed 1/min: 1700
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 39.8...42.2
 > 1000s.: (37.5...42.5)
 7th speed 1/min: 1150
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 35.5...36.5 E
 > 1000s.: (33.5...38.5) E
 8th speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 28.30...28.70
 > 1000s.: (25.50...31.50)

Electr. shutoff:

1st speed 1/min: 425
 Del. quantity cm3/: 0.00...3.00
 > 1000s.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 425
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 9.00...11.00
 > 1000s.: (6.00...14.00)
 Dispersion cm3/: 3.0
 > 1000s.: (4.0)
 2nd speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 0.00...6.00
 > 1000s.: (0.00...6.00)

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 20.0

1st speed 1/min: 1250
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 22.00...23.00
 > 1000s.: (20.00...25.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 33.00...63.00
> 1000S.: -

2nd speed 1/min: 480
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 20.00...32.00
> 1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 40.00...65.00
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 2.7...2.9
KF	mm: KOT
MS	mm: 1.6...2.0
HBA stroke	mm: 7.2
Ya	mm: 41.0...44.0
Yb	mm: 63.0...75.0

Remarks:

:
:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Always pay attention to test instructions for DISTRIBUTOR-TYPE INJECTION PUMPS FOR DI ENGINES!

Information additionally required for testing fuel-injection pump:

TEST PREREQUISITES

Calibrating-oil return temperature with thermometer, °C :45

Calibrating-oil inlet temperature, °C :35...40

Dwell speed, 1/min :1100

Feedback voltage, mV :-

SETTINGS/TEST SPECIFICATIONS FOR FUEL-INJECTION PUMP, delivery rates

Test speed, 1/min :<500

Temperature stabilisation speed 1/min :2200

Output temperature, °C :51

Measurement temperature, °C:49

Test speed, 1/min :500...799

Temperature stabilisation speed 1/min :2200

Output temperature, °C :48

Measurement temperature, °C:46

Test speed, 1/min :800...1199

Temperature stabilisation speed 1/min :2200/100

Output temperature, °C :45

Measurement temperature, °C:45

Test speed, 1/min :1200...1700

Temperature stabilisation speed 1/min :100

Output temperature, °C :42

Measurement temperature, °C:44

Test speed, 1/min :>1700

Temperature stabilisation speed 1/min :100

Output temperature, °C :41

Measurement temperature, °C:43

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX
Edition : 14.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F1900R653
Type number : 0 460 414 127
Customer Part-No. :

Customer-specific information
Customer : MAXION

Engine : GEMINI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 116

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.54
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600

Charge press. hPa: 1200
Setting value mm: 3.10...3.30
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1600
Charge press hPa: 1200
Setting value bar: 7.30...7.90
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1150
Charge press. hPa: 1200
Del. quantity cm3/
> 1000S.: 69.0...70.0
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.0
> 1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 50.5...51.5
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 16.5...20.5
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 4.0
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 2100
Charge press hPa: 1200
Del. quantity cm3/
> 1000S.: 48.0...52.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 61.0...111.0
mind> 1000S.: 61.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1300
Charge press hPa: 1200
TD travel mm: 0.80...1.40
> mm: (0.50...1.70)
electromagnet>Volt: 12
2nd speed 1/min: 1600
Charge press hPa: 1200
TD travel mm: 3.10...3.30
> mm: (2.70...3.70)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1900
Charge press hPa: 1200
TD travel mm: 4.60...5.20
> mm: (4.30...5.50)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1200
Supply-pump pressure> bar: 3.70...4.30
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1300
Charge press. hPa: 1200
Supply-pump pressure> bar: 6.40...7.00
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1600
Charge press. hPa: 1200
Supply-pump pressure> bar: 7.30...7.90
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1900
Charge press. hPa: 1200
Supply-pump pressure> bar: 8.30...8.90
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Overflow quantity> cm³/10s: (88.80...133.30)
> cm³/10s: (73.80...148.30)
2nd speed 1/min: 1850
Charge press. hPa: 1200
Shutoff

electromagnet>Volt: 12
Overflow quantity> cm³/10s: (111.10...194.80)
> cm³/10s: (96.10...209.80)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point> hPa: 600
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: (65.0...66.0)
> 1000s.: (62.5...68.5)
2nd speed 1/min: 2430
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: (0.00...3.00)
> 1000s.: -
3rd speed 1/min: 2250
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: (21.0...31.0)
> 1000s.: (20.0...32.0)
4th speed 1/min: 2100
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: (48.00...52.00)
> 1000s.: (45.00...55.00)
5th speed 1/min: 1850
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: (70.5...74.5)
> 1000s.: (69.5...75.5)
6th speed 1/min: 1150
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: (69.0...70.0)
> 1000s.: (67.0...72.0)
7th speed 1/min: 900
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: (70.0...75.0)
> 1000s.: (68.5...76.5)
8th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: (50.5...51.5)
> 1000s.: (48.0...54.0)

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 16.5...20.5
> 1000s.: (13.5...23.5)
Dispersion cm³/: 4.0
> 1000s.: (5.0)
2nd speed 1/min: 315
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 33.0...41.0
> 1000s.: (30.0...44.0)
3rd speed 1/min: 430
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 34.00...74.00
> 1000s.: -

2nd speed 1/min: 250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 30.00...80.00
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 2.7...2.9
KF mm: KOT
MS1 mm: 1.3...1.6
Ya mm: 44.0...48.0
Yb mm: 50.5...61.5

Remarks:

:
:
:

Ya = Distance between VE flange and

speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM
Edition : 01.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1175R533
Type number : 0 460 424 098
Customer Part-No. :

Customer-specific information
Customer : MWM

Engine : TD 226-B4 DI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Setting value mm: 4.20...4.60
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 800
Setting value bar: 6.70...7.30
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 800
Del. quantity cm3/
> 1000S.: 76.8...77.8
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 275
Del. quantity cm3/
> 1000S.: 7.0...13.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1175
Del. quantity cm3/
> 1000S.: 50.0...56.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 99.0...101.0
mind> 1000S.: 99.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1.6...2.4
> mm: (1.3...2.7)
electromagnet>Volt: 12
2nd speed 1/min: 900
TD travel mm: 4.7...5.5
> mm: (4.4...5.8)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 800
TD travel mm: 4.2...4.6

> mm: (3.7...5.1)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Supply-pump pressure> bar: 5.4...6.0
 Shutoff electromagnet>Volt: 12
 2nd speed 1/min: 800
 Supply-pump pressure> bar: 6.7...7.3
 Shutoff electromagnet>Volt: 12
 3rd speed 1/min: 1100
 Supply-pump pressure> bar: 7.6...8.2
 Shutoff electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 400
 Shutoff electromagnet>Volt: 12
 Overflow quantity> cm3/10s: (102.7...142.2)
 2nd speed 1/min: 1100
 Shutoff electromagnet>Volt: 12
 Overflow quantity> cm3/10s: (111.1...166.6)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1300
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 2nd speed 1/min: 1250
 Shutoff electromagnet Volt: 12
 Del. quantity cm3/: 0.0...15.0
 > 1000S.: -
 3rd speed 1/min: 1200
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 15.00...45.00
 > 1000S.: -
 4th speed 1/min: 1175
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 50.0...56.0
 > 1000S.: (44.5...61.5)
 5th speed 1/min: 1100
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 71.5...74.5

> 1000S.: (70.0...76.0)

6th speed 1/min: 800
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 76.8...77.8
 > 1000S.: (74.8...79.8)

7th speed 1/min: 600
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 72.0...78.0
 > 1000S.: (69.5...80.5)

8th speed 1/min: 400
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 69.0...75.0
 > 1000S.: (68.0...76.0)

Mech. shutoff:

1st speed 1/min: 1100
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 275
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff electromagnet>volt: -

Idle delivery:

1st speed 1/min: 275
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 7.00...13.00
 > 1000S.: (3.50...16.50)
 Dispersion cm3/: 3.5
 > 1000S.: (6.5)
 2nd speed 1/min: 350
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 60.00...90.00
 > 1000S.: -

2nd speed 1/min: 150
 Shutoff electromagnet>Volt: 12

Del. quantity cm³/: 90.00...140.00
> 1000s.: -

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 99.0...101.0 V
> 1000s.: (92.0...108.0) V

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.5...3.8

KF mm: KOT

MS1 mm: 0.9...1.3

SVS max. mm: 1.6

Ya mm: 41.4...45.4

Yb mm: 40.2...45.8

Remarks:

:
:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Starting delivery check

V = Speed-control lever in full-load position

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 01.03.96
replaces : 10.06.94
Calibrating oil : ISO-4113
Injection pump : VE4/12F1150R587
Type number : 0 460 424 105
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : "DI" 0824 LUE 521

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 250.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 688 901 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Charge press. hPa: 1000
Setting value mm: 1.80...2.20
Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 900
Charge press hPa: 1000
Setting value bar: 6.70...7.30
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 112.5...113.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 63.00...64.00
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 18.00...22.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 6.0
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1250
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 67.00...73.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: 90.00...150.00
mind> 1000S.: 90.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.40...3.20
> mm: (2.10...3.50)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 1.80...2.20
> mm: (1.30...2.70)
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 450
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.70...5.30
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.70...7.30
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.10...7.70
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 450
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm³/10s: (26.70...101.10)
2nd speed 1/min: 1150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 450
Charge-air pressure-setting
point> hPa: 400
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 99.0...100.0
> 1000s.: (96.0...103.0)
2nd speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)
3rd speed 1/min: 1320
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...15.00
> 1000s.: (0.00...15.00)
4th speed 1/min: 1290
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 15.00...55.00
> 1000s.: (15.00...55.00)
5th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 67.00...73.00
> 1000s.: (61.50...78.50)
9th speed 1/min: 1150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 98.00...103.00
> 1000s.: (96.50...104.50)
10th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 102.5...107.5
> 1000s.: (101.0...109.0)
12th speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 112.50...113.50
> 1000s.: (100.50...115.50)
18th speed 1/min: 450
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 63.00...64.00
> 1000s.: (60.50...66.50)
20th speed 1/min: 450
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 115.50...124.50

> 1000S.: (114.00...126.00)

Mech. shutoff:

1st speed 1/min: 1150
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
KSB/AFB
valve > Volt: 12

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 18.00...22.00
> 1000S.: (13.50...26.50)
Dispersion cm³/: 6.0
> 1000S.: (6.5)
2nd speed 1/min: 400
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 170
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 90.00...150.00
> 1000S.: -

2nd speed 1/min: 220
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 30.00...90.00
> 1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 90.00...150.00
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.2...6.6
MS1	mm: 1.0...1.3
SVS max.	mm: 3.2
Ya	mm: 41.8...44.8
Yb	mm: 38.0...43.8

Remarks:

: MAN - NR.7270

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Pump with slave plunger

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 29.02.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1150R609
Type number : 0 460 424 107
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0824LUE 522

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 950
Charge press. hPa: 1000
Setting value mm: 1.7...2.1
AFB/AFB

valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 950
Charge press hPa: 1000
Setting value bar: 6.90...7.50
KSB/AFB

valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 96.5...97.5

KSB/AFB
valve > Volt: 12
Shutoff

electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 65.5...66.5

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

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Low-idle speed regulation

Speed 1/min: 375
Charge press hPa: -
Del. quantity cm3/
> 1000S.: 16.0...20.0

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Del. quantity cm3/: 6.0
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1250
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 59.0...65.0

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: 90.00...150.00
mind> 1000S.: 90.00
KSB/AFB
Valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.6...1.4
> mm: (0.3...1.7)
KSB/AFB
valve > Volt: 12
electromagnet>Volt: 12
2nd speed 1/min: 950
Charge press hPa: 1000
TD travel mm: 1.7...2.1
> mm: (1.2...2.6)
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1050
Charge press hPa: 1000
TD travel mm: 2.30...3.10
> mm: (2.00...3.40)
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.9...5.5
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 950
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.9...7.5
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1150

Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.7...8.3
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm3/10s: 26.7...101.1)
2nd speed 1/min: 1150
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500
Charge-air pressure-setting
point> hPa: 300
LDA-stroke mm: -
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 87.5...88.5
> 1000S.: (84.5...91.5)
2nd speed 1/min: 1350
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
> 1000S.: -
3rd speed 1/min: 1300
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 1.0...31.0
> 1000S.: (0.0...32.0)
4th speed 1/min: 1250
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 59.0...65.0
> 1000S.: (53.5...70.5)
5th speed 1/min: 1150
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 89.5...94.5
> 1000S.: (88.0...96.0)
6th speed 1/min: 900
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 96.5...97.5
> 1000S.: (94.5...99.5)
7th speed 1/min: 750
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 101.0...106.0
> 1000S.: (99.5...107.5)
8th speed 1/min: 500
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 98.0...107.0
> 1000S.: (96.5...108.5)
9th speed 1/min: 500
Charge press. hPa: -
KSB/AFB
valve > Volt: 12

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 65.5...66.5
> 1000S.: (63.0...69.0)
10th speed 1/min: 900
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 96.5...97.5
> 1000S.: (94.5...99.5)

Mech. shutoff:

1st speed 1/min: 1150
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

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Shutoff
electromagnet>volt: 12
KSB/AFB
valve > Volt: 12

Electr. shutoff:

1st speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -
KSB/AFB
valve > Volt: 12

Idle delivery:

1st speed 1/min: 375
>KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 16.0...20.0
> 1000S.: (11.5...24.5)
Dispersion cm³/: 6.0
> 1000S.: (6.5)

2nd speed 1/min: 500
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 170
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 90.00...150.00
> 1000S.: -

2nd speed 1/min: 220
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 30.00...90.00
> 1000S.: -

4th speed 1/min: 100
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 90.00...150.00
> 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: 6.2...6.6

MS1 mm: 1.1...1.4

SVS max. mm: 3.8

FH mm: KSB=7.1MM

Ya mm: 42.3...44.3

Yb mm: 38.0...43.8

Remarks:

:
:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 29.02.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1150R625
Type number : 0 460 424 112
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0824LUE 523

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Charge press. hPa: 1000
Setting value mm: 2.0...2.4
Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 900
Charge press hPa: 1000
Setting value bar: 6.70...7.30
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del. quantity cm³/
> 1000S.: 84.5...85.5
Shutoff
electromagnet>Volt: 12
Dispersion cm³/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 450
Del. quantity cm³/
> 1000S.: 73.5...74.5
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Charge press hPa: -
Del. quantity cm³/
> 1000S.: 13.0...17.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 6.0
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1250
Charge press hPa: 1000
Del. quantity cm³/
> 1000S.: 53.0...59.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm³/: 90.00...150.00
mind> 1000S.: 90.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.0...1.8
> mm: (0.7...2.1)
electromagnet>Volt: 12
2nd speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 2.0...2.4
> mm: (1.5...2.9)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.60...3.40
> mm: (2.30...3.70)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 450
Charge press. hPa: 1000
Supply-pump pressure> bar: 4.7...5.3
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump pressure> bar: 6.7...7.3
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1150
Charge press. hPa: 1000
Supply-pump pressure> bar: 7.7...8.3
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Overflow quantity> cm³/10s: 41.70...86.10
(26.7...101.1)
2nd speed 1/min: 1150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow quantity> cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 450
Charge-air pressure-setting point> hPa: 300
LDA-stroke mm: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: 73.5...74.5
(70.5...77.5)
2nd speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 0.00...3.00
> 1000s.: -
3rd speed 1/min: 1320
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: 0.0...15.0
> 1000s.: -
4th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: 53.0...59.0
(47.5...64.5)
5th speed 1/min: 1220
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: 65.0...85.0
> 1000s.: -
6th speed 1/min: 1150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: 80.0...85.0
(78.5...86.5)
7th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: 82.0...87.0
(80.5...88.5)
8th speed 1/min: 450
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: 78.0...87.0
(76.5...88.5)
9th speed 1/min: 450
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/1000s.: 60.0...61.0
(57.5...63.5)
10th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12

Del. quantity cm³/: 84.5...85.5
> 1000S.: (82.5...87.5)

Mech. shutoff:

1st speed 1/min: 1150
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 13.0...17.0
> 1000S.: (8.5...21.5)
Dispersion cm³/: 6.0
> 1000S.: (6.5)
2nd speed 1/min: 420
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 95.00...155.00
> 1000S.: -

2nd speed 1/min: 220
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 30.00...90.00
> 1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 90.00...150.00
> 1000S.: -

Shutoff electromagnet:

Cut-in

K06

>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.2...6.6
MS1	mm: 1.1...1.4
SVS max.	mm: 2.7
FH	mm: KSB=7.1MM
Ya	mm: 41.8...44.8
Yb	mm: 38.1...43.9

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Pump with slave plunger

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CASE
 Edition : 25.03.96
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/12F1200R645
 Type number : 0 460 424 120
 Customer Part-No. : 191 963 A1

Customer-specific information
 Customer : CASE

Engine : DT 268/4240

Power KW: 74

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 020

Opening
 Pressure> bar: 169.00...175.00

Perforated-plate
 diameter> mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 840

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
 Setting value mm: 2.2...2.6

Supply-pump pressure

Speed 1/min: 800
 Setting value bar: 5.80...6.40

Full-load del. w/out charge press.:

Speed 1/min: 800
 Del. quantity cm³/
 > 1000S.: 103.5...104.5
 Dispersion cm³/: 3.5
 > 1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm³/
 > 1000S.: 18.0...22.0
 Del. quantity cm³/: 3.0
 > 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1265
 Del. quantity cm³/
 > 1000S.: 73.0...77.0

Start:

Speed 1/min: 100
 Del. quantity cm³/: 110.0...160.0
 mind> 1000S.: 110.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
 TD travel mm: 0.7...1.5
 > mm: (0.4...1.8)
 2nd speed 1/min: 800
 TD travel mm: 2.2...2.6
 > mm: (1.7...3.1)
 3rd speed 1/min: 1050
 TD travel mm: 4.10...4.90
 > mm: (3.80...5.20)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Supply-pump
 pressure> bar: 4.4...5.0
 2nd speed 1/min: 800
 Supply-pump
 pressure> bar: 5.8...6.4
 3rd speed 1/min: 1050
 Supply-pump
 pressure> bar: 6.8...7.4

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 40.2...81.4
quantity> cm³/10s: (25.2...96.4)
2nd speed 1/min: 1150
Overflow : 41.6...125.0
quantity> cm³/10s: (26.6...140.0)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1375
Del. quantity cm³/: 0.00...3.00
> 1000s.: -
2nd speed 1/min: 1300
Del. quantity cm³/: 28.0...58.0
> 1000s.: -
3rd speed 1/min: 1265
Del. quantity cm³/: 73.0...77.0
> 1000s.: (67.0...83.0)
4th speed 1/min: 1150
Del. quantity cm³/: 105.0...108.5
> 1000s.: (100.0...110.0)
5th speed 1/min: 800
Del. quantity cm³/: 103.5...104.5
> 1000s.: (101.5...106.5)
6th speed 1/min: 500
Del. quantity cm³/: 84.0...91.0
> 1000s.: (82.5...92.5)

Mech. shutoff:

1st speed 1/min: 1200
Del. quantity cm³/: 0.0...3.0
> 1000s.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 18.0...22.0
> 1000s.: (15.5...24.5)
Dispersion cm³/: 3.0
> 1000s.: (3.5)
2nd speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
> 1000s.: -

Automatic starting fuel delivery:

1st speed 1/min: 220
Del. quantity cm³/: 67.0...87.0
> 1000s.: -

2nd speed 1/min: 160
Del. quantity cm³/: 120.0...170.0
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: -
MS1 mm: 1.3...1.6
SVS max. mm: 2.4
Ya mm: 36.2...40.2
Yb mm: 53.2...61.2

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 25.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R646
Type number : 0 460 424 121
Customer Part-No. : 3 282 812

Customer-specific information
Customer : CDC

Engine : 4 BTAA 3.9

Power KW: 97
Speed 1/min: 2800

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 027

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: 0.3
> (from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 1.95
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 950
Charge press. hPa: 1000
Setting value mm: 1.5...1.9
Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 950
Charge press hPa: 1000
Setting value bar: 5.90...6.50
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
> 1000S.: 76.5...77.5
Shutoff
electromagnet>Volt: 24
Dispersion cm³/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm³/
> 1000S.: 44.5...45.5
Shutoff
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm³/
> 1000S.: 7.5...9.5
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 5.5
> 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1000
Del. quantity cm³/
> 1000S.: 42.0...48.0
Shutoff
electromagnet>Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 75.0...145.0
mind> 1000S.: 75.0
Shutoff

electromagnet>Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 950
Charge press hPa: 1000
TD travel mm: 1.5...1.9
> mm: (1.0...2.4)

electromagnet>Volt: 24
2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 2.2...3.0
> mm: (1.9...3.3)

Shutoff

electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 550
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.0...4.6
Shutoff

electromagnet>Volt: 24
2nd speed 1/min: 950
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.9...6.5
Shutoff

electromagnet>Volt: 24
3rd speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.8...8.4
Shutoff

electromagnet>Volt: 24

Overlow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Overflow : 33.3...77.7
quantity> cm³/10s: (18.3...92.7)

2nd speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Overflow : 50.0...105.5
quantity> cm³/10s: (35.0...120.5)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
Charge-air pressure-setting

point> hPa: 500

Shutoff

electromagnet>Volt: 24
Del. quantity cm³/: 62.0...63.0
> 1000s.: (58.0...67.0)

2nd speed 1/min: 1625
Charge press. hPa: 1000

Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
> 1000s.: -

3rd speed 1/min: 1550
Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 24
Del. quantity cm³/: 9.0...39.0
> 1000s.: -

4th speed 1/min: 1500
Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 24
Del. quantity cm³/: 42.0...48.0
> 1000s.: (39.0...51.0)

5th speed 1/min: 1400
Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 24
Del. quantity cm³/: 68.5...71.5
> 1000s.: (66.5...73.5)

6th speed 1/min: 750
Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 24
Del. quantity cm³/: 76.5...77.5
> 1000s.: (73.5...80.5)

7th speed 1/min: 550
Charge press. hPa: -

Shutoff

electromagnet>Volt: 24
Del. quantity cm³/: 44.5...45.5
> 1000s.: (41.0...49.0)

Mech. shutoff:

1st speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/: 0.0...3.0
> 1000s.: -

Shutoff

electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 400
Charge press. hPa: -
Del. quantity cm³/: 0.0...3.0
> 1000s.: -

Shutoff

electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 7.5...9.5
> 1000s.: (3.0...14.0)
Dispersion cm³/: 5.5
> 1000s.: (7.0)
2nd speed 1/min: 450
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 0.00...4.00
> 1000s.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 40.0...90.0
> 1000s.: -
2nd speed 1/min: 230
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 75.00...125.0
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: -
MS1	mm: 1.3...1.6
Ya	mm: 34.8...38.8
Yb	mm: 41.8...47.2

Remarks:

⋮

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 25.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1200R636-1
Type number : 0 460 424 123
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0824 LFL 05

Power KW: 114

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Charge press. hPa: 1500

Setting value mm: 1.9...2.3
Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 900
Charge press hPa: 1500
Setting value bar: 7.00...7.60
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1500
Del. quantity cm3/
> 1000S.: 109.5...110.5
Shutoff
electromagnet>Volt: 24
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 62.0...63.0
Shutoff
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
> 1000S.: 12.5...16.5
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 6.0
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1340
Charge press hPa: 1500
Del. quantity cm3/
> 1000S.: 73.0...77.0
Shutoff
electromagnet>Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 90.0...130.0
mind> 1000S.: 90.0
Shutoff
electromagnet>Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
Charge press hPa: 1500
TD travel mm: 0.6...1.4
> mm: (0.3...1.7)
electromagnet>Volt: 24
2nd speed 1/min: 900
Charge press hPa: 1500
TD travel mm: 1.9...2.3
> mm: (1.4...2.8)
Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1050
Charge press hPa: 1500
TD travel mm: 3.5...4.3
> mm: (3.2...4.6)
Shutoff
electromagnet>Volt: 24
4th speed 1/min: 1200
Charge press hPa: 1500
TD travel mm: 4.5...5.3
> mm: -
Shutoff
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 550
Charge press. hPa: 1500
Supply-pump pressure> bar: 5.2...5.8
Shutoff
electromagnet>Volt: 24
2nd speed 1/min: 900
Charge press. hPa: 1500
Supply-pump pressure> bar: 7.0...7.6
Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1200
Charge press. hPa: 1500
Supply-pump pressure> bar: 8.6...9.2
Shutoff
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Overflow quantity> cm³/10s: 41.7...86.1
(26.7...101.1)
2nd speed 1/min: 1200
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24

Overflow quantity> cm³/10s: 55.5...138.8
(40.5...153.8)

Delivery-quant. and breakaway char.:

1st speed 1/min: 550
Charge-air pressure-setting point> hPa: 500
LDA-stroke mm: 7.8
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 98.5...99.5
> 1000S.: (96.0...102.0)
2nd speed 1/min: 1470
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
> 1000S.: -
3rd speed 1/min: 1420
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 0.0...15.0
> 1000S.: -
4th speed 1/min: 1380
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 15.0...45.0
> 1000S.: -
5th speed 1/min: 1340
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 73.0...77.0
> 1000S.: (67.0...83.0)
6th speed 1/min: 1200
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 102.5...107.5
> 1000S.: (101.0...109.0)
7th speed 1/min: 1000
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 109.5...110.5
> 1000S.: (107.5...112.5)
8th speed 1/min: 700
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 114.5...119.5
> 1000S.: (113.0...121.0)
9th speed 1/min: 550
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24

Del. quantity cm³/: 117.0...126.0
> 1000S.: (115.5...127.5)
10th speed 1/min: 550
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 62.0...63.0
> 1000S.: (59.5...65.5)

Electr. shutoff:

1st speed 1/min: 400
Charge press. hPa: -
Del. quantity cm³/: 0.0...3.0
> 1000S.: -
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 12.5...16.5
> 1000S.: (9.5...19.5)
Dispersion cm³/: 6.0
> 1000S.: (6.5)
2nd speed 1/min: 500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 0.00...3.00
> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 10.0...50.0
> 1000S.: -

2nd speed 1/min: 150
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 80.00...140.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: -

MS mm: 1.1...1.4
LDA stroke mm: 7.8
Ya mm: 37.4...40.4
Yb mm: 41.9...47.1

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOFIM
Edition : 25.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1800R657
Type number : 0 460 424 124
Customer Part-No. :

Customer-specific information
Customer : IVECO SOFIM

Engine : 8140.23.3700

Power KW: 77

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 027

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value mm: 0.7...0.9

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1200
Setting value bar: 6.50...7.10
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del. quantity cm3/
> 1000S.: 57.0...58.0
Shutoff
electromagnet>Volt: 12
Dispersion cm3/
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 28.0...29.0
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 6.00...10.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2000
Charge press hPa: 1200
Del. quantity cm3/
> 1000S.: 40.0...46.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind> 1000S.: 55.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1100
Charge press hPa: 1200
TD travel mm: 0.7...0.9
> mm: (0.1...1.5)
electromagnet>Volt: 12
2nd speed 1/min: 1400
Charge press hPa: 1200
TD travel mm: 2.5...3.3
> mm: (2.2...3.6)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1800
Charge press hPa: 1200
TD travel mm: 4.60...5.20
> mm: (4.20...5.60)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure> bar: 4.0...4.6
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump
pressure> bar: 6.5...7.1
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1800
Charge press. hPa: 1200
Supply-pump
pressure> bar: 9.0...9.6
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Overflow : 75.0...119.4
quantity> cm3/10s: (60.0...134.4)
2nd speed 1/min: 1800
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Overflow : 97.2...180.5
quantity> cm3/10s: (82.2...195.5)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750

Charge-air pressure-setting
point> hPa: 500
LDA-stroke mm: 6.7
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 45.5...46.5
> 1000S.: (42.5...49.5)
2nd speed 1/min: 2200
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...4.00
> 1000S.: -
3rd speed 1/min: 2100
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 16.0...26.0
> 1000S.: (14.0...28.0)
4th speed 1/min: 2000
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 40.0...46.0
> 1000S.: (38.5...47.5)
5th speed 1/min: 1800
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 58.0...62.0
> 1000S.: (56.5...63.5)
6th speed 1/min: 1400
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 56.5...63.5
> 1000S.: -
7th speed 1/min: 1100
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 37.5...44.5
> 1000S.: -
8th speed 1/min: 1100
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 57.0...58.0
> 1000S.: (54.0...61.0)
9th speed 1/min: 550
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 28.0...29.0
> 1000S.: (25.0...32.0)

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 6.0...10.0
> 1000S.: (4.0...12.0)
Dispersion cm³/: 6.0
> 1000S.: (6.5)
2nd speed 1/min: 425
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.0...3.0
> 1000S.: -
3rd speed 1/min: 320
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 8.00...18.0
> 1000S.: (7.00...19.0)

Automatic starting fuel delivery:

1st speed 1/min: 510
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 22.0...32.0
> 1000S.: -
2nd speed 1/min: 200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 75.0...105
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.5...3.7
KF	mm: -
MS1	mm: 1.3...1.6
LDA stroke	mm: 6.7
Ya	mm: 33.0...35.0
Yb	mm: 44.0...50.0

Remarks:

:
:

Ya = Distance between VE flange and

speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOFIM
Edition : 25.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1800R660
Type number : 0 460 424 125
Customer Part-No. :

Customer-specific information
Customer : IVECO SOFIM

Engine : 8140.43.3700

Power KW: 86

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 027

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value mm: 1.5...1.7

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1200
Setting value bar: 6.70...7.30
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
Charge press. hPa: 1200
Del. quantity cm3/
> 1000S.: 62.5...63.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 33.5...34.5
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
> 1000S.: 5.00...9.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 6.0
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2000
Charge press hPa: 1200
Del. quantity cm3/
> 1000S.: 40.0...46.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.0...90.0
mind> 1000S.: 60.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1100
Charge press hPa: 1200
TD travel mm: 1.5...1.7
> mm: (0.9...2.3)
electromagnet>Volt: 12
2nd speed 1/min: 1400
Charge press hPa: 1200
TD travel mm: 2.5...3.3
> mm: (2.1...3.5)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1600
Charge press hPa: 1200
TD travel mm: 3.50...4.10
> mm: (3.10...4.50)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1200
Supply-pump pressure> bar: 5.1...5.7
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump pressure> bar: 6.7...7.3
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1800
Charge press. hPa: 1200
Supply-pump pressure> bar: 8.5...9.1
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Overflow quantity> cm3/10s: 75.0...119.4
(60.0...134.4)
2nd speed 1/min: 1800
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Overflow quantity> cm3/10s: 97.2...180.5
(82.2...195.5)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800

Charge-air pressure-setting point> hPa: 500
LDA-stroke mm: 7.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/ 53.5...54.5
> 1000s.: (50.5...57.5)
2nd speed 1/min: 2200
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm3/ 0.00...4.00
> 1000s.: -
3rd speed 1/min: 2100
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/ 16.0...26.0
> 1000s.: (14.0...28.0)
4th speed 1/min: 2000
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/ 40.0...46.0
> 1000s.: (38.5...47.5)
5th speed 1/min: 1800
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/ 61.0...65.0
> 1000s.: (59.5...66.5)
6th speed 1/min: 1400
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/ 59.5...64.5
> 1000s.: -
7th speed 1/min: 1750
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/ 62.5...63.5
> 1000s.: (59.5...66.5)
8th speed 1/min: 950
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/ 59.0...64.0
> 1000s.: -
9th speed 1/min: 600
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/ 65.0...69.0
> 1000s.: (61.5...72.5)
10th speed 1/min: 550
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/ 33.5...34.5

> 1000S.: (30.5...37.5)

Electr. shutoff:

1st speed 1/min: 325
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 5.0...9.0
> 1000S.: (3.0...11.0)
Dispersion cm³/: 6.0
> 1000S.: (6.5)
2nd speed 1/min: 425
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.0...3.0
> 1000S.: -
3rd speed 1/min: 275
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 34.0...50.0
> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 29.0...35.0
> 1000S.: -

2nd speed 1/min: 200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 75.0...105.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.5...3.7
KF mm: -
MS1 mm: 1.4...1.7
LDA stroke mm: 7.0
FH mm: KSB 5.7MM

K20

Ya mm: 33.0...35.0
Yb mm: 44.0...50.0

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 14.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R661
Type number : 0 460 424 126
Customer Part-No. :

Customer-specific information
Customer : CUMMINS

Engine : 4 BT F4000-EUR01

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.2
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1200
Setting value mm: 2.5...2.7
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1200
Setting value bar: 7.20...7.80
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 1200
Del. quantity cm³/
> 1000S.: 96.0...97.0
Shutoff
electromagnet>Volt: 12
Dispersion cm³/: 5.0
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
> 1000S.: 55.5...57.5
Shutoff
electromagnet>Volt: 12
Dispersion cm³/: 5.0
> 1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 380
Del. quantity cm³/
> 1000S.: 13.0...17.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 5.5
> 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1200
Del. quantity cm³/
> 1000S.: 61.0...67.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 125.0...175.0
mind> 1000S.: 125.0
Shutoff

electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 700
Charge press hPa: 1200
TD travel mm: 2.3...3.3
> mm: (2.1...3.5)

electromagnet>Volt: 12
2nd speed 1/min: 1050
Charge press hPa: 1200
TD travel mm: 0.9...1.5
> mm: (0.6...1.8)

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1200
TD travel mm: 2.50...2.70
> mm: (2.10...3.10)

Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1400
Charge press hPa: 1200
TD travel mm: 3.0...3.6
> mm: (2.7...3.9)

Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1200
Supply-pump
pressure> bar: 4.0...4.6

Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1050
Charge press. hPa: 1200
Supply-pump
pressure> bar: 6.2...6.8

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump
pressure> bar: 7.2...7.8

Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1400
Charge press. hPa: 1200
Supply-pump
pressure> bar: 7.9...8.5

Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Overflow : 40.2...81.4
quantity> cm³/10s: (25.2...96.4)
2nd speed 1/min: 1300
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Overflow : 41.6...125.0
quantity> cm³/10s: (26.6...140.0)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point> hPa: 500
LDA-stroke mm: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 83.0...84.0
> 1000s.: (79.5...87.5)

2nd speed 1/min: 1650
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000s.: -

3rd speed 1/min: 1580
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 25.0...39.0
> 1000s.: (17.0...47.0)

4th speed 1/min: 1500
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 61.0...67.0
> 1000s.: (58.0...70.0)

5th speed 1/min: 1300
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 89.5...94.5
> 1000s.: (88.0...96.0)

6th speed 1/min: 1050
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 92.0...97.0
> 1000s.: (90.5...98.5)

7th speed 1/min: 800
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 96.0...97.0
> 1000s.: (93.5...99.5)

8th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 55.5...57.5
> 1000S.: (51.5...60.5)

Mech. shutoff:

1st speed 1/min: 1300
Charge press. hPa: 1200
Del. quantity cm³/: 0.0...3.0
> 1000S.: -

Shutoff
electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 400
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 380
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 13.0...17.0
> 1000S.: (10.0...20.0)

Dispersion cm³/: 7.0
> 1000S.: (7.0)

2nd speed 1/min: 480

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000S.: -

3rd speed 1/min: 250

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 35.0...45.0
> 1000S.: (34.0...46.0)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 45.0...75.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
MS1	mm: 1.4...1.7
Ya	mm: 35.0...39.0
Yb	mm: 41.9...47.1

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAXION
Edition : 22.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R664
Type number : 0 460 424 127
Customer Part-No. :

Customer-specific information
Customer : MAXION

Engine : S4 EURO 1

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1240
Setting value mm: 1.8...2.0
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1240
Setting value bar: 7.70...8.30
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 850
Del. quantity cm3/
> 1000S.: 69.5...70.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 380
Del. quantity cm3/
> 1000S.: 13.0...17.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1550
Del. quantity cm3/
> 1000S.: 39.0...45.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 100.0...140.0
mind> 1000S.: 100.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1120
TD travel mm: 0.9...1.5
> mm: (0.6...1.8)
electromagnet>Volt: 12
2nd speed 1/min: 1240
TD travel mm: 1.8...2.0
> mm: (1.4...2.4)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1400
TD travel mm: 1.80...2.40

> mm: (1.50...2.70)
Shutoff
electromagnet>Volt: 12
Supply-pump pressure characteristic:
1st speed 1/min: 500
Supply-pump
pressure> bar: 4.3...4.9
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1120
Supply-pump
pressure> bar: 7.2...7.8
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1240
Supply-pump
pressure> bar: 7.7...8.3
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1400
Supply-pump
pressure> bar: 8.5...9.1
Shutoff
electromagnet>Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Overflow : 38.8...79.6
quantity> cm³/10s: (23.8...94.6)
2nd speed 1/min: 1350
Shutoff
electromagnet>Volt: 12
Overflow : 41.6...125.0
quantity> cm³/10s: (26.6...140.0)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1730
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.0...3.0
> 1000s.: -
2nd speed 1/min: 1650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.0...27.0
> 1000s.: (10.0...30.0)
3rd speed 1/min: 1550
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 39.0...45.0
> 1000s.: (36.0...48.0)
4th speed 1/min: 1350
Shutoff

electromagnet>Volt: 12
Del. quantity cm³/: 65.5...69.5
> 1000s.: (64.0...71.0)
5th speed 1/min: 850
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 69.5...70.5
> 1000s.: (67.0...73.0)
6th speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 60.0...66.0
> 1000s.: (58.0...68.0)

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 380
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 13.0...17.0
> 1000s.: (11.0...19.0)
Dispersion cm³/: 4.0
> 1000s.: (5.0)
2nd speed 1/min: 300
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 45.0...53.0
> 1000s.: (43.0...55.0)
3rd speed 1/min: 450
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...6.00
> 1000s.: (0.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 45.0...85.0
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: -
MS1	mm: 1.4...1.7
Ya	mm: 33.0...35.0
Yb	mm: 42.8...51.2

Remarks:

⋮

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM
Edition : 14.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R666
Type number : 0 460 424 128
Customer Part-No. :

Customer-specific information
Customer : MWM

Engine : 4.10 NA VW7100

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.0
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1150
Setting value mm: 1.9...2.1
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1150
Setting value bar: 7.30...7.90
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 850
Del. quantity cm³/
> 1000s.: 69.5...70.5
Shutoff
electromagnet>Volt: 12
Dispersion cm³/: 4.0
> 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm³/
> 1000s.: 17.5...21.5
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 3.5
> 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1550
Del. quantity cm³/
> 1000s.: 44.0...50.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 75.0...115.00
mind> 1000s.: 75.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 0.7...1.3
> mm: (0.4...1.6)
electromagnet>Volt: 12
2nd speed 1/min: 1150
TD travel mm: 1.9...2.1
> mm: (1.5...2.5)

Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1400
 TD travel mm: 3.20...3.80
 > mm: (2.90...4.10)
 Shutoff
 electromagnet>Volt: 12

 Supply-pump pressure characteristic:

 1st speed 1/min: 500
 Supply-pump
 pressure> bar: 4.4...5.0
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1000
 Supply-pump
 pressure> bar: 6.7...7.3
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1150
 Supply-pump
 pressure> bar: 7.3...7.9
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 1400
 Supply-pump
 pressure> bar: 8.4...9.0
 Shutoff
 electromagnet>Volt: 12

 Overflow quantity at overflow valve:

 1st speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12
 Overflow : 40.2...81.4
 quantity> cm3/10s: (25.2...96.4)
 2nd speed 1/min: 1400
 Shutoff
 electromagnet>Volt: 12
 Overflow : 41.6...125.0
 quantity> cm3/10s: (26.6...140.0)

 Delivery-quant. and breakaway char.:

 1st speed 1/min: 1730
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 0.0...3.0
 > 1000S.: -
 2nd speed 1/min: 1650
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 13.0...27.0
 > 1000S.: (10.0...30.0)
 3rd speed 1/min: 1550
 Shutoff
 electromagnet>Volt: 12

Del. quantity cm3/: 44.0...50.0
 > 1000S.: (41.0...53.0)
 4th speed 1/min: 1400
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 68.0...72.0
 > 1000S.: (66.5...73.5)
 5th speed 1/min: 850
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 69.5...70.5
 > 1000S.: (67.0...73.0)
 6th speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 53.0...59.0
 > 1000S.: (51.0...61.0)

Electr. shutoff:

1st speed 1/min: 400
 Charge press. hPa: -
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 17.5...21.5
 > 1000S.: (15.5...23.5)
 Dispersion cm3/: 4.0
 > 1000S.: (5.0)
 2nd speed 1/min: 320
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 43.0...51.0
 > 1000S.: (41.0...53.0)
 3rd speed 1/min: 480
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 0.00...6.00
 > 1000S.: (0.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 35.0...75.0
 > 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: -
MS1	mm: 1.4...1.7
Ya	mm: 37.3...39.3
Yb	mm: 34.0...44.7

Remarks:

:
:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM
Edition : 14.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1500R667
Type number : 0 460 424 129
Customer Part-No. :

Customer-specific information
Customer : MWM

Engine : 4.10 NA F1000

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.0
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1150
Setting value mm: 1.9...2.1
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1150
Setting value bar: 7.30...7.90
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 850
Del. quantity cm3/
> 1000s.: 69.5...70.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
> 1000s.: 15.5...19.5
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1670
Del. quantity cm3/
> 1000s.: 42.0...48.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 75.0...115.00
mind> 1000s.: 75.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 0.7...1.3
> mm: (0.4...1.6)
electromagnet>Volt: 12
2nd speed 1/min: 1150
TD travel mm: 1.9...2.1
> mm: (1.5...2.5)

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1400
TD travel mm: 3.20...3.80
> mm: (2.90...4.10)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure> bar: 4.4...5.0
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1000
Supply-pump
pressure> bar: 6.7...7.3
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1150
Supply-pump
pressure> bar: 7.3...7.9
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1400
Supply-pump
pressure> bar: 8.4...9.0
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Overflow : 40.2...81.4
quantity> cm³/10s: (25.2...96.4)
2nd speed 1/min: 1500
Shutoff
electromagnet>Volt: 12
Overflow : 41.6...125.0
quantity> cm³/10s: (26.6...140.0)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1840
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.0...3.0
> 1000S.: -
2nd speed 1/min: 1780
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.0...26.0
> 1000S.: (9.0...29.0)
3rd speed 1/min: 1500
Shutoff
electromagnet>Volt: 12

Del. quantity cm³/: 67.0...71.0
> 1000S.: (65.5...72.5)
4th speed 1/min: 850
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 69.5...70.5
> 1000S.: (67.0...73.0)
5th speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 53.0...59.0
> 1000S.: (51.0...61.0)

Electr. shutoff:

1st speed 1/min: 400
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 15.5...19.5
> 1000S.: (13.5...21.5)
Dispersion cm³/: 4.0
> 1000S.: (5.0)
2nd speed 1/min: 290
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 23.0...31.0
> 1000S.: (21.0...33.0)
3rd speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...6.00
> 1000S.: (0.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 35.0...75.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: -
MS1	mm: 1.4...1.7
Ya	mm: 39.0...41.0
Yb	mm: 40.8...49.2

Remarks:

:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM
Edition : 14.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1500R668
Type number : 0 460 424 130
Customer Part-No. :

Customer-specific information
Customer : MWM

Engine : 4.10 T EURO IF 1000T

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Charge press. hPa: 1200
Setting value mm: 3.1...3.3
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Charge press hPa: 1200
Setting value bar: 7.30...7.90
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1200
Del. quantity cm3/
> 1000S.: 91.5...92.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 49.5...53.5
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 390
Charge press hPa: -
Del. quantity cm3/
> 1000S.: 5.0...9.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1650
Charge press hPa: 1200
Del. quantity cm3/
> 1000S.: 67.0...73.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: 63.00...103.00
mind> 1000S.: 63.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000

Charge press hPa: 1200
TD travel mm: 1.1...1.7
> mm: (0.8...2.0)
electromagnet>Volt: 12
2nd speed 1/min: 1200
Charge press hPa: 1200
TD travel mm: 3.1...3.3
> mm: (2.7...3.7)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1400
Charge press hPa: 1200
TD travel mm: 4.60...5.20
> mm: (4.30...5.50)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump pressure> bar: 4.2...4.8
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1200
Supply-pump pressure> bar: 6.5...7.1
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1200
Charge press. hPa: 1200
Supply-pump pressure> bar: 7.3...7.9
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1400
Charge press. hPa: 1200
Supply-pump pressure> bar: 8.1...8.7
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Overflow quantity> cm3/10s: 40.2...81.4
(25.2...96.4)
2nd speed 1/min: 1450
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Overflow quantity> cm3/10s: 36.10...119.40
(21.10...134.40)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point> hPa: 500
LDA-stroke mm: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 74.5...77.5
> 1000S.: (72.0...80.0)
2nd speed 1/min: 1910
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
> 1000S.: -
3rd speed 1/min: 1800
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 22.0...36.0
> 1000S.: (19.0...39.0)
4th speed 1/min: 1630
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 67.0...73.0
> 1000S.: (64.0...76.0)
5th speed 1/min: 1450
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 90.0...94.0
> 1000S.: (88.5...95.5)
6th speed 1/min: 1050
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 89.0...95.0
> 1000S.: (87.0...97.0)
7th speed 1/min: 850
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 91.5...92.5
> 1000S.: (89.0...95.0)
8th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 49.5...53.5
> 1000S.: (47.0...55.5)

Electr. shutoff:

1st speed 1/min: 400
Charge press. hPa: -
Del. quantity cm3/: 0.00...3.00

> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 390

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 5.0...9.0

> 1000S.: (3.0...11.0)

Dispersion cm³/: 4.0

> 1000S.: (5.0)

2nd speed 1/min: 300

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 22.0...30.0

> 1000S.: (20.0...32.0)

3rd speed 1/min: 450

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 0.00...3.00

> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 30.0...70.0

> 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: -

MS† mm: 1.3...1.6

Ya mm: 39.5...41.5

Yb mm: 40.8...49.2

Remarks:

:
:
:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM
Edition : 14.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1300R669
Type number : 0 460 424 131
Customer Part-No. :

Customer-specific information
Customer : MWM

Engine : 4.10 T EURO I VW8140

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Charge press. hPa: 1200
Setting value mm: 3.1...3.3
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Charge press hPa: 1200
Setting value bar: 7.30...7.90
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1200
Del. quantity cm3/
> 1000S.: 91.5...92.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 49.5...53.5
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Charge press hPa: -
Del. quantity cm3/
> 1000S.: 8.0...12.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1530
Charge press hPa: 1200
Del. quantity cm3/
> 1000S.: 65.0...71.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: 63.00...103.00
mind> 1000S.: 63.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000

Charge press hPa: 1200
 TD travel mm: 1.1...1.7
 > mm: (0.8...2.0)
 electromagnet>Volt: 12
 2nd speed 1/min: 1200
 Charge press hPa: 1200
 TD travel mm: 3.1...3.3
 > mm: (2.7...3.7)
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1400
 Charge press hPa: 1200
 TD travel mm: 4.60...5.20
 > mm: (4.30...5.50)
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1200
 Supply-pump pressure> bar: 4.2...4.8
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1000
 Charge press. hPa: 1200
 Supply-pump pressure> bar: 6.5...7.1
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1200
 Charge press. hPa: 1200
 Supply-pump pressure> bar: 7.3...7.9
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 1400
 Charge press. hPa: 1200
 Supply-pump pressure> bar: 8.1...8.7
 Shutoff
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12
 Overflow quantity> cm3/10s: 38.8...83.3
 (23.8...98.3)
 2nd speed 1/min: 1300
 Charge press. hPa: 1200
 Shutoff
 electromagnet>Volt: 12
 Overflow quantity> cm3/10s: 36.10...119.40
 (21.10...134.40)

Delivery-quant. and breakaway char.:

L09

1st speed 1/min: 700
 Charge-air pressure-setting point> hPa: 500
 LDA-stroke mm: -
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 74.5...77.5
 > 1000s.: (72.0...80.0)
 2nd speed 1/min: 1760
 Charge press. hPa: 1200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...3.00
 > 1000s.: -
 3rd speed 1/min: 1670
 Charge press. hPa: 1200
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 22.0...36.0
 > 1000s.: (19.0...39.0)
 4th speed 1/min: 1530
 Charge press. hPa: 1200
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 65.0...71.0
 > 1000s.: (62.0...74.0)
 5th speed 1/min: 1300
 Charge press. hPa: 1200
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 92.5...96.5
 > 1000s.: (91.0...98.0)
 6th speed 1/min: 1050
 Charge press. hPa: 1200
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 89.0...95.0
 > 1000s.: (87.0...97.0)
 7th speed 1/min: 850
 Charge press. hPa: 1200
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 91.5...92.5
 > 1000s.: (89.0...95.0)
 8th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 49.5...53.5
 > 1000s.: (47.0...55.5)

Electr. shutoff:

1st speed 1/min: 400
 Charge press. hPa: -
 Del. quantity cm3/: 0.00...3.00

> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 8.0...12.0

> 1000S.: (6.0...14.0)

Dispersion cm³/: 4.0

> 1000S.: (5.0)

2nd speed 1/min: 325

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 28.0...38.0

> 1000S.: (27.0...39.0)

3rd speed 1/min: 430

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 0.00...3.00

> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 63.0...103.0

> 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: -

MS1 mm: 1.3...1.6

Ya mm: 45.5...46.5

Yb mm: 36.3...44.7

Remarks:

:
:
:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX
Edition : 14.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R682
Type number : 0 460 424 133
Customer Part-No. :

Customer-specific information
Customer : MAXION

Engine : S4T-PLUS-EURO I

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1150
Charge press. hPa: 1400
Setting value mm: 2.4...2.6
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1150
Charge press hPa: 1400
Setting value bar: 6.70...7.30
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 950
Charge press. hPa: 1400
Del. quantity cm3/
> 1000S.: 95.0...96.0
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 74.5...78.5
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Charge press hPa: -
Del. quantity cm3/
> 1000S.: 22.0...26.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1570
Charge press hPa: 1400
Del. quantity cm3/
> 1000S.: 59.5...65.5
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: 125.0...165.0
mind> 1000S.: 125.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 950

Charge press hPa: 1400
 TD travel mm: 0.9...1.5
 > mm: (0.6...1.8)
 electromagnet>Volt: 12
 2nd speed 1/min: 1150
 Charge press hPa: 1400
 TD travel mm: 2.4...2.6
 > mm: (2.0...3.0)
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1350
 Charge press hPa: 1400
 TD travel mm: 3.10...3.70
 > mm: (2.80...4.00)
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1400
 Supply-pump pressure> bar: 3.9...4.5
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 950
 Charge press. hPa: 1400
 Supply-pump pressure> bar: 5.9...6.5
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1150
 Charge press. hPa: 1400
 Supply-pump pressure> bar: 6.7...7.3
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 1350
 Charge press. hPa: 1400
 Supply-pump pressure> bar: 7.5...8.1
 Shutoff
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12
 Overflow quantity> cm3/10s: (23.8...98.3)
 2nd speed 1/min: 1300
 Charge press. hPa: 1400
 Shutoff
 electromagnet>Volt: 12
 Overflow quantity> cm3/10s: (21.10...134.40)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
 Charge-air pressure-setting point> hPa: 750
 LDA-stroke mm: -
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 84.0...88.0
 > 1000S.: (81.5...90.5)
 2nd speed 1/min: 1830
 Charge press. hPa: 1400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 3rd speed 1/min: 1700
 Charge press. hPa: 1400
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 30.5...46.5
 > 1000S.: (28.5...48.5)
 4th speed 1/min: 1570
 Charge press. hPa: 1400
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 59.5...65.5
 > 1000S.: (56.5...68.5)
 5th speed 1/min: 1300
 Charge press. hPa: 1400
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 92.0...96.0
 > 1000S.: (90.5...97.5)
 6th speed 1/min: 950
 Charge press. hPa: 1400
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 95.0...96.0
 > 1000S.: (92.5...98.5)
 7th speed 1/min: 700
 Charge press. hPa: 1400
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 99.0...105.0
 > 1000S.: (97.0...107.0)
 8th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 74.5...78.5
 > 1000S.: (72.0...81.0)

Electr. shutoff:

1st speed 1/min: 400
 Charge press. hPa: -
 Del. quantity cm3/: 0.00...3.00

> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 22.0...26.0
> 1000S.: (20.0...28.0)

Dispersion cm³/: 4.0
> 1000S.: (5.0)

2nd speed 1/min: 270

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 49.0...57.0
> 1000S.: (47.0...59.0)

3rd speed 1/min: 450

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 65.0...105.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: -
MS1 mm: 1.2...1.5
Ya mm: 28.0...30.0
Yb mm: 45.8...54.2

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 25.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1200R568-1
Type number : 0 460 424 134
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0824 LF01

Power KW: 114

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850
Charge press. hPa: 1500

Setting value mm: 2.0...2.4
Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 850
Charge press hPa: 1500
Setting value bar: 6.40...7.00
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1500
Del. quantity cm³/
> 1000S.: 107.5...108.5
Shutoff
electromagnet>Volt: 24
Dispersion cm³/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm³/
> 1000S.: 60.5...61.5
Shutoff
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm³/
> 1000S.: 13.0...17.0
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 6.0
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1300
Charge press hPa: 1500
Del. quantity cm³/
> 1000S.: 72.0...78.0
Shutoff
electromagnet>Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 105.0...165.0
mind> 1000S.: 105.0
Shutoff
electromagnet>Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
Charge press hPa: 1500
TD travel mm: 0.7...1.5
> mm: (0.4...1.8)
electromagnet>Volt: 24
2nd speed 1/min: 850
Charge press hPa: 1500
TD travel mm: 2.0...2.4
> mm: (1.5...2.9)
Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1500
TD travel mm: 3.60...4.40
> mm: (3.30...4.70)
Shutoff
electromagnet>Volt: 24
4th speed 1/min: 1200
Charge press hPa: 1500
TD travel mm: 4.5...5.3
> mm: -

Supply-pump pressure characteristic:

1st speed 1/min: 550
Charge press. hPa: 1500
Supply-pump pressure> bar: 4.9...5.5
Shutoff
electromagnet>Volt: 24
2nd speed 1/min: 850
Charge press. hPa: 1500
Supply-pump pressure> bar: 6.4...7.0
Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1200
Charge press. hPa: 1500
Supply-pump pressure> bar: 8.2...8.8
Shutoff
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 550
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Overflow quantity> : 75.0...119.4
cm³/10s: (60.0...134.4)
2nd speed 1/min: 1200
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 12
Overflow quantity> : 97.2...180.5
cm³/10s: (82.2...195.5)

Delivery-quant. and breakaway char.:

1st speed 1/min: 550
Charge-air pressure-setting point> hPa: 400
LDA-stroke mm: 7.6
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 80.5...81.5
> 1000s.: (78.5...83.5)
2nd speed 1/min: 1370
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
> 1000s.: -
3rd speed 1/min: 1340
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 4.50...19.5
> 1000s.: -
4th speed 1/min: 1300
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 72.0...78.0
> 1000s.: -
5th speed 1/min: 1200
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 100.5...105.5
> 1000s.: (99.0...107.0)
6th speed 1/min: 1000
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 107.5...108.5
> 1000s.: (105.5...110.5)
7th speed 1/min: 850
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 111.5...116.5
> 1000s.: (109.5...118.5)
8th speed 1/min: 700
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 110.0...115.0
> 1000s.: (107.0...118.0)
9th speed 1/min: 550
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 60.5...61.5
> 1000s.: (58.0...64.0)

10th speed 1/min: 550
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 109.5...118.5
> 1000S.: (108.0...129.0)

Mech. shutoff:

1st speed 1/min: 1200
Charge press. hPa: 1500
Del. quantity cm³/: 0.0...3.0
> 1000S.: -
Shutoff
electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 400
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 13.0...17.0
> 1000S.: (10.0...20.0)
Dispersion cm³/: 6.0
> 1000S.: (6.5)
2nd speed 1/min: 500
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 0.0...3.0
> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 430
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 48.0...88.0
> 1000S.: -

2nd speed 1/min: 330
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 75.0...105.0
> 1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 44.0...46.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: -
MS1 mm: 1.3...1.6
LDA stroke mm: 7.6
FH mm: KSB 7.1MM
Ya mm: 37.4...40.4
Yb mm: 35.4...40.6

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 12.02.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1250R498-4
Type number : 0 460 426 245
Customer Part-No. : 3 282 753

Customer-specific information
Customer : CDC EURO2

Engine : 6 BTAA 5,9 B DI

Power KW: 107
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.4
> mm: +0.02(0.06)
Outlet > : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Charge press. hPa: 1000
Setting value mm: 1.20...1.60
Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 900
Charge press hPa: 1000
Setting value bar: 5.90...6.50
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 82.50...83.50
Shutoff
electromagnet>Volt: 24
Dispersion cm3/: 5.0
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 69.00...70.00
Shutoff
electromagnet>Volt: 24
Dispersion cm3/: 5.0
> 1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 330
Del. quantity cm3/
> 1000S.: 7.0...11.0
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 5.5
> 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1380
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 60.0...66.0
Shutoff
electromagnet>Volt: 24

Start:

Speed 1/min: 100
Charge press hPa: -

Del. quantity cm³/: 110.0...150.0
mind> 1000S.: 130.0
Shutoff
electromagnet>Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450
Charge press hPa: -
TD travel mm: 2.00...3.00
> mm: (1.80...3.20)

KSB/AFB
valve > Volt: 24
electromagnet>Volt: 24
2nd speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 0.60...1.40
> mm: (0.30...1.70)

Shutoff
electromagnet>Volt: 24
4th speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 1.20...1.60
> mm: (0.70...2.10)

Shutoff
electromagnet>Volt: 24
5th speed 1/min: 1250
Charge press. hPa: 1000
TD travel mm: 2.40...3.20
> mm: (2.10...3.50)

Shutoff
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -

Shutoff
electromagnet>Volt: 24
2nd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.10
> bar: -

Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.90...6.50

Shutoff
electromagnet>Volt: 24
4th speed 1/min: 1250
Charge press. hPa: 1000

Supply-pump
pressure> bar: 7.2...7.8
Shutoff
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Overflow : 41.70...86.10
quantity> cm³/10s: (26.70...101.10)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Overflow : 55.60...139.00
quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600
Charge-air pressure-setting
point> hPa: 450
LDA-stroke mm: 7.0
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 83.50...84.50
> 1000S.: (80.00...88.00)

2nd speed 1/min: 1490
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

3rd speed 1/min: 1430
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 15.0...45.0
> 1000S.: -

4th speed 1/min: 1380
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 60.0...66.0
> 1000S.: (55.0...71.0)

5th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 83.5...88.5
> 1000S.: (83.0...89.0)

6th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 83.0...88.0

> 1000S.: (82.0...89.0)
 7th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 69.0...70.0
 > 1000S.: (65.5...73.5)
 8th speed 1/min: 850
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 82.5...83.5
 > 1000S.: (80.0...86.0)

Electr. shutoff:

1st speed 1/min: 350
 Charge press. hPa: -
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 330
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 7.0...11.0
 > 1000S.: (4.0...14.0)
 Dispersion cm3/: 5.5
 > 1000S.: (7.0)
 2nd speed 1/min: 390
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 110.0...150.0
 > 1000S.: -

2nd speed 1/min: 240
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 68.0...88.0
 > 1000S.: -

Shutoff electromagnet:

Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8
 KF mm: 6.2...6.6
 MS mm: -
 LDA stroke mm: 7.0
 Ya mm: 34.8...38.8
 Yb mm: 45.3...50.1

Remarks:

:
 :
 Ya = Distance between VE flange and
 speed-control lever in idle
 position
 Measurement point = edge of control
 lever on drive end
 Yb = Distance between VE flange and
 speed-control lever in rated speed
 position
 Measurement point = edge of control
 lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 12.02.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R498-5
Type number : 0 460 426 246
Customer Part-No. : 3 282 744

Customer-specific information
Customer : CDC EURO2

Engine : 6 BTAA 5,9 B DI

Power KW: 120
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.4
> mm: ±0.02(0.06)

Outlet > : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.60...2.00
Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 6.50...7.10
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm³/
> 1000s.: 79.50...80.50
Shutoff
electromagnet>Volt: 24
Dispersion cm³/: 5.0
> 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
> 1000s.: 71.00...72.00
Shutoff
electromagnet>Volt: 24
Dispersion cm³/: 5.0
> 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm³/
> 1000s.: 8.0...12.0
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 5.5
> 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1380
Charge press hPa: 1000
Del. quantity cm³/
> 1000s.: 54.0...66.0
Shutoff
electromagnet>Volt: 24

Start:

Speed 1/min: 100
Charge press hPa: -

Del. quantity cm³/: 75.0...115.0
mind> 1000s.: 75.0
Shutoff
electromagnet>Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450
Charge press hPa: -
TD travel mm: 1.90...2.90
> mm: (1.70...3.10)

KSB/AFB

valve > Volt: 24
electromagnet>Volt: 24
2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.60...2.00
> mm: (1.10...2.50)

Shutoff
electromagnet>Volt: 24
4th speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.00...2.80
> mm: (1.70...3.10)
Shutoff
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -

Shutoff
electromagnet>Volt: 24
2nd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.10
> bar: -

Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10

Shutoff
electromagnet>Volt: 24
4th speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.0...7.6
Shutoff
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Overflow : 41.70...86.10
quantity> cm³/10s: (26.70...101.10)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Overflow : 55.60...139.00
quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600
Charge-air pressure-setting
point> hPa: 450
LDA-stroke mm: 7.0
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 77.50...78.50
> 1000s.: (74.00...82.00)

2nd speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)

3rd speed 1/min: 1465
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 00.0...40.0
> 1000s.: -

4th speed 1/min: 1380
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 54.0...66.0
> 1000s.: (52.0...68.0)

5th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 82.5...86.5
> 1000s.: (81.0...88.0)

6th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 81.5...86.5
> 1000s.: (80.0...88.0)

7th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 71.0...72.0

> 1000S.: (67.5...75.5)
8th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 79.5...80.5
> 1000S.: (77.0...83.0)

Mech. shutoff:

1st speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 0.0...3.0
> 1000S.: -

Shutoff
electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 8.0...12.0
> 1000S.: (5.0...15.0)

Dispersion cm³/: 5.5
> 1000S.: (7.0)

2nd speed 1/min: 410
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 80.0...120.0
> 1000S.: -

2nd speed 1/min: 240
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 70.0...90.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.2...6.6
MS	mm: -
LDA stroke	mm: 7.0
Ya	mm: 34.8...38.8
Yb	mm: 45.3...50.1

Remarks:

:
:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 12.02.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R498-6
Type number : 0 460 426 249
Customer Part-No. : 3 282 743

Customer-specific information
Customer : CDC

Engine : 6 BTAA 5,9 B DI

Power KW: 133
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.4
> mm: ±0.02(0.06)

Outlet > : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850
Charge press. hPa: 1000
Setting value mm: 1.30...1.70
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 850
Charge press hPa: 1000
Setting value bar: 5.50...6.10
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm³/
> 1000s.: 86.00...87.00
Shutoff
electromagnet>Volt: 12
Dispersion cm³/: 5.0
> 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
> 1000s.: 59.50...60.50
Shutoff
electromagnet>Volt: 12
Dispersion cm³/: 5.0
> 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm³/
> 1000s.: 13.0...17.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 5.5
> 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1380
Charge press hPa: 1000
Del. quantity cm³/
> 1000s.: 65.50...71.50
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -

Del. quantity cm3/: 80.0...110.0
mind> 1000S.: 80.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450
Charge press hPa: -
TD travel mm: 1.90...2.90
> mm: (1.70...3.10)

KSB/AFB
valve > Volt: 12
electromagnet>Volt: 12
2nd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 0.60...1.40
> mm: (0.30...1.70)

Shutoff
electromagnet>Volt: 12
4th speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 1.30...1.70
> mm: (0.80...2.20)

Shutoff
electromagnet>Volt: 12
5th speed 1/min: 1250
Charge press. hPa: 1000
TD travel mm: 2.00...2.80
> mm: (1.70...3.10)

Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50

Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.10...5.70

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.50...6.10

Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.9...7.5

Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm3/10s: (26.70...101.10)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600
Charge-air pressure-setting
point> hPa: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 78.00...79.00
> 1000S.: (74.50...82.50)

2nd speed 1/min: 1530
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)

3rd speed 1/min: 1465
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 17.5...37.5
> 1000S.: -

4th speed 1/min: 1380
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 65.5...71.5
> 1000S.: (62.5...74.5)

5th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 84.0...87.0
> 1000S.: (82.0...89.0)

6th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 86.5...89.5
> 1000S.: (84.5...91.5)

7th speed 1/min: 500
Charge press. hPa: -

Shutoff
electromagnet>Volt: 12

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 13.0...17.00
> 1000S.: (10.0...20.0)

Dispersion cm³/: 5.5
> 1000S.: (7.0)

2nd speed 1/min: 410

Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 80.0...120.0
> 1000S.: -

2nd speed 1/min: 230
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 55.0...85.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: 6.2...6.6
MS mm: -
LDA stroke mm: -
Ya mm: 34.8...38.8
Yb mm: 42.7...48.3

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM
Edition : 06.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1400R665
Type number : 0 460 426 250
Customer Part-No. :

Customer-specific information
Customer : MWM

Engine : 6.10 NA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 2.70...2.90
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200

Setting value bar: 8.00...8.60
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
> 1000s.: 66.0...67.0

Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
> 1000s.: 14.0...18.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1550
Del. quantity cm3/
> 1000s.: 47.50...54.50
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 90.00...130.00
mind> 1000s.: 90.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 0.60...1.20
> mm: (0.30...1.50)
electromagnet>Volt: 12
2nd speed 1/min: 1200
TD travel mm: 2.70...2.90
> mm: (2.30...3.30)

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1400
TD travel mm: 3.90...4.50
> mm: (3.60...4.80)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Supply-pump pressure> bar: 4.60...5.20
 Shutoff electromagnet>Volt: 12
 2nd speed 1/min: 1000
 Supply-pump pressure> bar: 7.00...7.60
 Shutoff electromagnet>Volt: 12
 3rd speed 1/min: 1200
 Supply-pump pressure> bar: 8.00...8.60
 Shutoff electromagnet>Volt: 12
 4th speed 1/min: 1400
 Supply-pump pressure> bar: 8.60...9.20
 Shutoff electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff electromagnet>Volt: 12
 Overflow quantity> cm3/10s: (55.50...100.5)
 2nd speed 1/min: 1400
 Shutoff electromagnet>Volt: 12
 Overflow quantity> cm3/10s: (52.70...136.10)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1740
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 0.0...3.0
 > 1000S.: -
 2nd speed 1/min: 1650
 Shutoff electromagnet Volt: 12
 Del. quantity cm3/: 21.0...35.0
 > 1000S.: (18.0...38.0)
 3rd speed 1/min: 1550
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 48.5...54.5
 > 1000S.: (45.5...57.5)
 4th speed 1/min: 1400
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 65.5...69.5
 > 1000S.: (64.0...70.5)
 5th speed 1/min: 1000

Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 72.0...78.0
 > 1000S.: (70.0...80.0)
 6th speed 1/min: 750
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 66.0...67.0
 > 1000S.: (63.5...69.5)
 7th speed 1/min: 500
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 58.0...64.0
 > 1000S.: (56.0...66.0)

Electr. shutoff:

1st speed 1/min: 400
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 14.0...18.00
 > 1000S.: (12.0...20.00)
 Dispersion cm3/: 3.5
 > 1000S.: (5.0)
 2nd speed 1/min: 350
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 31.0...39.0
 > 1000S.: (29.0...41.0)
 3rd speed 1/min: 450
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 260
 Shutoff electromagnet>Volt: 12
 Del. quantity cm3/: 40.00...80.00
 > 1000S.: -

Shutoff electromagnet:

Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
MS1	mm: 1.1...1.4
Ya	mm: 41.0...43.0
Yb	mm: 37.8...46.2

Remarks:

:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 08.02.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R498-7
Type number : 0 460 426 251
Customer Part-No. :

Customer-specific information
Customer : CUMMINS

Engine : 6 BT

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.4
> mm: $\pm 0.02(0.04)$
Outlet > : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.60...2.00
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.00...6.60
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm³/
> 1000S.: 80.00...81.00
Shutoff
electromagnet>Volt: 12
Dispersion cm³/
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
> 1000S.: 58.50...59.50
Shutoff
electromagnet>Volt: 12
Dispersion cm³/
> 1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 320
Del. quantity cm³/
> 1000S.: 11.5...15.5
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/
> 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1380
Charge press hPa: 1000
Del. quantity cm³/
> 1000S.: 51.00...57.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/
mind> 1000S.: 130.0

Shutoff

electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450
Charge press hPa: -
TD travel mm: 1.90...2.90
> mm: (1.70...3.10)

KSB/AFB
valve > Volt: 12
electromagnet>Volt: 12
2nd speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.50...1.30
> mm: (0.20...1.60)

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.60...2.00
> mm: (1.10...2.50)

Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.00...2.80
> mm: (1.70...3.10)

Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.10...4.70

Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.50...6.10

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.00...6.60

Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.00...7.60

Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Overflow : 55.50...100.5
quantity> cm3/10s: (40.50...115.5)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 52.70...136.10
quantity> cm3/10s: (37.70...151.10)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600
Charge-air pressure-setting
point> hPa: 500
LDA-stroke mm: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 79.50...81.50
> 1000S.: (76.00...84.00)

2nd speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)

3rd speed 1/min: 1450
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 12.0...32.0
> 1000S.: -

4th speed 1/min: 1380
Charge press. hPa: 1000
Del. quantity cm3/: 51.0...57.0
> 1000S.: (48.0...60.0)

5th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 81.50...84.50
> 1000S.: (80.00...86.00)

6th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 82.0...85.0
> 1000S.: (80.0...87.0)

7th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 80.0...81.0

> 1000s.: (77.5...83.5)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 90.50...100.5
> 1000s.: -

Mech. shutoff:

1st speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)
Shutoff
electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 320
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 320
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 11.5...15.50
> 1000s.: (8.50...18.50)
Dispersion cm³/: 5.5
> 1000s.: (7.0)
2nd speed 1/min: 250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 21.0...29.0
> 1000s.: (19.0...31.0)
3rd speed 1/min: 400
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 130.00...170.00
> 1000s.: -

2nd speed 1/min: 240
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 50.00...80.00
> 1000s.: -

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 115.00...145.00
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: -
MS mm: -
LDA stroke mm: -
Ya mm: 34.5...38.5
Yb mm: 45.2...50.8

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 27.02.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1350R623-1
Type number : 0 460 426 252
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8060.45.5200 EURO2

Power KW: 152

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 027

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1050
Charge press. hPa: 1000
Setting value mm: 2.10...2.30

AFB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.5...7.1
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 82.50...83.50
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
Dispersion cm3/
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 52.50...53.50
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24

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Low-idle speed regulation

Speed 1/min: 340
Del. quantity cm3/
> 1000S.: 13.0...17.0
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 4.0
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1450
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 55.00...59.00
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...110.00
mind> 1000s.: 60.0

KSB/AFB
valve > Volt: 24

Shutoff
electromagnet>Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 950
Charge press hPa: 1000
TD travel mm: 0.90...1.50
> mm: (0.50...1.90)

KSB/AFB
valve > Volt: 24
electromagnet>Volt: 24

2nd speed 1/min: 1050
Charge press hPa: 1000
TD travel mm: 2.10...2.30
> mm: (1.50...2.90)

KSB/AFB
valve > Volt: 24

Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 340
Charge press hPa: 1000
TD travel mm: 1.8...2.2 A
> mm: -

KSB/AFB
valve > Volt: -

Shutoff
electromagnet>Volt: 24
4th speed 1/min: 470
Charge press hPa: 1000
TD travel mm: 2.2...3.4 B
> mm: -

KSB/AFB
valve > Volt: -

Shutoff
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 470
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.00...7.60

KSB/AFB
valve > Volt: -

Shutoff
electromagnet>Volt: 24
2nd speed 1/min: 600
Charge press. hPa: 1000

Supply-pump
pressure> bar: 4.10...4.70

KSB/AFB
valve > Volt: 24

Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1000

Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10

KSB/AFB
valve > Volt: 24

Shutoff
electromagnet>Volt: 24
4th speed 1/min: 1350
Charge press. hPa: 1000

Supply-pump
pressure> bar: 8.40...9.00

KSB/AFB
valve > Volt: 24

Shutoff
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000

KSB/AFB
valve > Volt: 24

Shutoff
electromagnet>Volt: 24
Overflow : 55.50...100.5
quantity> cm³/10s: (40.50...115.5)

2nd speed 1/min: 1350
Charge press. hPa: 1000

KSB/AFB
valve > Volt: 24

Shutoff
electromagnet>Volt: 24
Overflow : 52.70...136.10
quantity> cm³/10s: (37.70...151.10)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600
Charge-air pressure-setting
point> hPa: 400

LDA-stroke mm: -
KSB/AFB
valve > Volt: 24

Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 73.0...74.0
> 1000s.: (79.5...86.5)

2nd speed 1/min: 1600
Charge press. hPa: 1000

KSB/AFB
valve > Volt: 24

Shutoff

electromagnet Volt: 24
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 3rd speed 1/min: 1530
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 23.0...31.0
 > 1000S.: (21.0...33.0)
 4th speed 1/min: 1450
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 24
 Del. quantity cm3/: 55.0...59.0
 > 1000S.: (51.0...63.0)
 5th speed 1/min: 1200
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 86.0...90.0
 > 1000S.: (84.5...91.5)
 6th speed 1/min: 1350
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 79.0...82.0
 > 1000S.: (77.0...84.0)
 7th speed 1/min: 700
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 82.5...83.5
 > 1000S.: (79.5...86.5)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 84.50...88.5
 > 1000S.: (83.0...90.0)
 9th speed 1/min: 599
 Charge press. hPa: -
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 52.5...53.5
 > 1000S.: (49.5...56.5)

Electr. shutoff:
 1st speed 1/min: 350
 Charge press. hPa: -
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -
 Idle delivery:
 1st speed 1/min: 340
 >KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 13.0...17.0
 > 1000S.: (10.0...20.0)
 Dispersion cm3/: 4.0
 > 1000S.: (5.0)
 2nd speed 1/min: 370
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 0.00...10.0
 > 1000S.: -
 3rd speed 1/min: 425
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Automatic starting fuel delivery:
 1st speed 1/min: 200
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 75.0...125.0
 > 1000S.: -
 2nd speed 1/min: 350
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 45.00...65.00
 > 1000S.: -
 4th speed 1/min: 100
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 60.00...110.00
 > 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: 3.5...3.7

KF mm: -

MS mm: -

MS1 mm: 1.3...1.6

LDA stroke mm: -

Ya mm: 37.9...39.9

Yb mm: 41.4...46.6

Remarks:

:
:
:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Edition : 12.02.96
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1250R671
 Type number : 0 460 426 254
 Customer Part-No. : 3 282 755

Customer-specific information
 Customer : CDC EURO2

Engine : 6 BTAA 5,9 B DI

Power KW: 96
 Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 109

Opening
 Pressure> bar: 204.00...210.00

Perforated-plate
 diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 840

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Start of delivery block
 Piston stroke mm: 1.4
 > mm: ±0.02(0.06)

Outlet > : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
 Charge press. hPa: 1000
 Setting value mm: 1.60...2.00
 Shutoff
 electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 1100
 Charge press hPa: 1000
 Setting value bar: 6.70...7.30
 Shutoff
 electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 81.00...82.00
 Shutoff
 electromagnet>Volt: 24
 Dispersion cm3/: 5.0
 > 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm3/
 > 1000S.: 65.0...66.0
 Shutoff
 electromagnet>Volt: 24
 Dispersion cm3/: 5.0
 > 1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 300
 Del. quantity cm3/
 > 1000S.: 7.5...11.5
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 5.5
 > 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1400
 Charge press hPa: 1000
 Del. quantity cm3/
 > 1000S.: 33.5...39.5
 Shutoff
 electromagnet>Volt: 24

Start:

Speed 1/min: 100
 Charge press hPa: -

Del. quantity cm³/: 70.0...100.0
mind> 1000S.: 70.0

Shutoff
electromagnet>Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450
Charge press hPa: -
TD travel mm: 1.80...2.80
> mm: (1.60...3.00)

KSB/AFB
valve > Volt: 24
electromagnet>Volt: 24
2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.50...1.70
> mm: -

Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.6...2.0
> mm: (1.1...2.5)

Shutoff
electromagnet>Volt: 24
4th speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 1.90...2.70
> mm: (1.60...3.00)

Shutoff
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.20...4.80
> bar: -

Shutoff
electromagnet>Volt: 24
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.70...7.30
> bar: -

Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.40...8.00
Shutoff
electromagnet>Volt: 24

Overlow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Overflow : 37.50...82.00
quantity> cm³/10s: (22.50...97.00)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Overflow : 44.40...100.00
quantity> cm³/10s: (29.40...115.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600
Charge-air pressure-setting
point> hPa: 300
LDA-stroke mm: 5.3
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 73.50...74.50
> 1000S.: (70.00...78.00)

2nd speed 1/min: 1490
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

3rd speed 1/min: 1445
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 2.0...32.0
> 1000S.: -

4th speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 33.5...39.5
> 1000S.: (30.5...42.5)

5th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 82.0...86.0
> 1000S.: (81.0...87.0)

6th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 65.0...66.0
> 1000S.: (61.5...69.5)

7th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 81.0...82.0

> 1000S.: (78.5...84.5)

Mech. shutoff:

1st speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 0.0...3.0
> 1000S.: -

Shutoff
electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 300
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 7.5...11.5
> 1000S.: (4.5...14.5)

Dispersion cm³/: 5.5
> 1000S.: (7.0)

2nd speed 1/min: 370
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 80.0...120.0
> 1000S.: -

2nd speed 1/min: 210
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 60.0...90.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8

KF mm: 6.2...6.6
MS1 mm: 1.0...1.25
LDA stroke mm: 5.3
Ya mm: 34.8...38.8
Yb mm: 43.0...48.6

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 26.02.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R498-8
Type number : 0 460 426 256
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTAA 5,9 B DI

Power KW: 118
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.4
> mm: +0.02(0.06)
Outlet > : 0

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.50...1.90
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 6.30...6.90
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm3/
> 1000s.: 84.00...85.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/
> 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000s.: 70.5...71.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/
> 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000s.: 6.0...10.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/
> 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1380
Charge press hPa: 1000
Del. quantity cm3/
> 1000s.: 57.5...63.5
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100

Charge press hPa: -
Del. quantity cm3/: 70.0...100.0
mind> 1000s.: 70.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450
Charge press hPa: -
TD travel mm: 1.90...2.90
> mm: (1.70...3.10)

KSB/AFB
valve > Volt: 12
electromagnet>Volt: 12
2nd speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.30...1.10
> mm: (0.00...1.40)

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.5...1.9
> mm: (1.0...2.4)

Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.00...2.80
> mm: (1.70...3.10)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.10...4.70
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.90...6.50
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.30...6.90
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump

pressure> bar: 7.3...7.9
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Overflow : 37.50...82.00
quantity> cm3/10s: (22.50...97.00)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 44.40...100.00
quantity> cm3/10s: (29.40...115.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600
Charge-air pressure-setting
point> hPa: 450
LDA-stroke mm: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 79.00...80.00
> 1000s.: (75.50...83.50)
2nd speed 1/min: 1510
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
> 1000s.: (0.00...3.00)
3rd speed 1/min: 1465
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 12.0...32.0
> 1000s.: -
4th speed 1/min: 1380
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 57.5...63.5
> 1000s.: (54.5...66.5)
5th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 82.5...85.5
> 1000s.: (81.0...87.0)
6th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 70.5...71.5
> 1000s.: (67.0...75.0)

7th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 84.0...85.0
> 1000S.: (81.5...87.5)

Mech. shutoff:

1st speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 0.0...3.0
> 1000S.: -

Shutoff
electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 6.0...10.0
> 1000S.: (3.0...13.0)
Dispersion cm³/: 5.5
> 1000S.: (7.0)

2nd speed 1/min: 410
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 75.0...115.0
> 1000S.: -

2nd speed 1/min: 240
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 65.0...95.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.2...6.6
MS1	mm: 1.2..1.35
Ya	mm: 34.8...38.8
Yb	mm: 43.8...49.4

Remarks:

:
:
Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 26.02.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R373-8
Type number : 0 460 426 257
Customer Part-No. : 3 930 172

Customer-specific information
Customer : CDC

Engine : 6 BTA 590 DI

Power KW: 130
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 027

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: 0.3
> (from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.85
> mm: $\pm 0.02(0.06)$
Outlet > : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Charge press. hPa: 1000
Setting value mm: 1.30...1.70
Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 750
Charge press hPa: 1000
Setting value bar: 3.20...3.80
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
> 1000S.: 84.50...85.50
Shutoff
electromagnet>Volt: 24
Dispersion cm³/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
> 1000S.: 68.5...69.5
Shutoff
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
> 1000S.: 8.0...14.0
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 5.5
> 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1300
Charge press hPa: 1000
Del. quantity cm³/
> 1000S.: 59.0...65.0
Shutoff
electromagnet>Volt: 24

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm³/: 70.0...130.0
mind> 1000S.: 70.0

Shutoff
electromagnet>Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 0.40...1.20
> mm: (0.10...1.50)

electromagnet>Volt: 24
2nd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.30...1.70
> mm: (0.80...2.20)

Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1050
Charge press hPa: 1000
TD travel mm: 2.2...3.0
> mm: (1.9...3.3)

Shutoff
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 2.20...2.80

Shutoff
electromagnet>Volt: 24
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.20...3.80

Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.50...5.10

Shutoff
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Overflow : 37.50...82.00
quantity> cm3/10s: (22.50...97.00)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Overflow : 44.40...100.00

quantity> cm3/10s: (29.40...115.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point> hPa: 400
LDA-stroke mm: -
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 77.50...78.50
> 1000S.: (74.00...82.00)

2nd speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)

3rd speed 1/min: 1330
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 18.0...58.0
> 1000S.: -

4th speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 59.0...65.0
> 1000S.: (56.0...68.0)

5th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 76.5...79.5
> 1000S.: (75.0...81.0)

6th speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 80.0...83.0
> 1000S.: (78.0...85.0)

7th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 68.5...69.5
> 1000S.: (65.0...73.0)

8th speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 84.5...85.5
> 1000S.: (82.0...88.0)

Mech. shutoff:

1st speed 1/min: 1250

Charge press. hPa: 1000
 Del. quantity cm³/: 0.0...3.0
 > 1000S.: -
 Shutoff
 electromagnet>volt: 24

 Electr. shutoff:

 1st speed 1/min: 375
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

 Idle delivery:

 1st speed 1/min: 375
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm³/: 8.0...14.0
 > 1000S.: (6.0...16.0)
 Dispersion cm³/: 5.5
 > 1000S.: (7.0)
 2nd speed 1/min: 500
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm³/: 0.00...4.00
 > 1000S.: (0.00...4.00)

 Automatic starting fuel delivery:

 1st speed 1/min: 250
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm³/: 80.0...140.0
 > 1000S.: -

 2nd speed 1/min: 450
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm³/: 48.0...88.0
 > 1000S.: -

 Shutoff electromagnet:

 Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0

 Mounting and assembly dimensions:

 Designation
 K mm: -
 KF mm: 5.0...5.4
 MS1 mm: 1.4...1.7
 SVS max. mm: 6.0
 LDA stroke mm: -
 Ya mm: 34.8...38.8
 Yb mm: 42.8...48.2

Remarks:
 :
 :
 Ya = Distance between VE flange and
 speed-control lever in idle
 position
 Measurement point = edge of control
 lever on drive end

 Yb = Distance between VE flange and
 speed-control lever in rated speed
 position
 Measurement point = edge of control
 lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 27.02.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1200R496-1
Type number : 0 460 426 258
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0826 LF07 DI

Power KW: 140

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: 0.3
> (from BDC): +-0,02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850
Charge press. hPa: 1000

Setting value mm: 2.00...2.40
Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 850
Charge press hPa: 1000
Setting value bar: 7.30...7.90
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 91.50...92.50
Shutoff
electromagnet>Volt: 24
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 59.5...60.5
Shutoff
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 250
Del. quantity cm3/
> 1000S.: 16.5...23.5
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 6.0
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1280
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 62.0...68.0
Shutoff
electromagnet>Volt: 24

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: 60.0...100.0
mind> 1000S.: 60.0
Shutoff
electromagnet>Volt: 24

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 0.60...1.40
> mm: (0.30...1.70)
electromagnet>Volt: 24
2nd speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 2.00...2.40
> mm: (1.50...2.90)
Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 950
Charge press hPa: 1000
TD travel mm: 2.9...3.7
> mm: (2.6...4.0)
Shutoff
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure> bar: 5.50...6.10
Shutoff
electromagnet>Volt: 24
2nd speed 1/min: 850
Charge press. hPa: 1000
Supply-pump pressure> bar: 7.30...7.90
Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1200
Charge press. hPa: 1000
Supply-pump pressure> bar: 9.00...9.60
Shutoff
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 24
Overflow quantity> cm³/10s: (22.50...97.00)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Overflow quantity> cm³/10s: (29.40...115.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500
Charge-air pressure-setting point> hPa: 450
LDA-stroke mm: 7.5
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/1000S.: (90.50...95.50)
> 1000S.: (90.50...95.50)
2nd speed 1/min: 1450
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: (0.00...3.00)
> 1000S.: (0.00...3.00)
3rd speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/1000S.: 0.00...15.0
> 1000S.: -
4th speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/1000S.: 30.0...56.0
> 1000S.: -
5th speed 1/min: 1280
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/1000S.: (60.5...69.5)
> 1000S.: (60.5...69.5)
6th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/1000S.: (85.4...93.4)
> 1000S.: (85.4...93.4)
7th speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/1000S.: (90.6...98.6)
> 1000S.: (90.6...98.6)
8th speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/1000S.: (97.0...105.0)
> 1000S.: (97.0...105.0)
9th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/1000S.: (100.6...112.6)
> 1000S.: (100.6...112.6)
10th speed 1/min: 500
Charge press. hPa: -
Shutoff

electromagnet>Volt: 24
Del. quantity cm³/: 59.5...60.5
> 1000s.: (57.5...62.5)
11th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff

electromagnet>Volt: 24
Del. quantity cm³/: 91.5...92.5
> 1000s.: (89.5...94.5)

Mech. shutoff:

1st speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/: 0.0...3.0
> 1000s.: -

Shutoff

electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 250
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)

Shutoff

electromagnet>volt: -

Idle delivery:

1st speed 1/min: 250
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 16.5...23.5
> 1000s.: (14.5...25.5)
Dispersion cm³/: 6.0
> 1000s.: (6.5)

2nd speed 1/min: 400

Shutoff

electromagnet>Volt: 24
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 330
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 70.0...100.0
> 1000s.: -

2nd speed 1/min: 430
Shutoff
electromagnet>Volt: 24
Del. quantity cm³/: 40.0...70.0
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: KOT
MS	mm: 0.9...1.3
LDA stroke	mm: 7.5
Ya	mm: 37.4...40.4
Yb	mm: 44.2...49.4

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 11.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/8F2500R611-1
Type number : 0 460 484 099
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : TUD 5-L3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 0.8
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 4.80...5.20
Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.00...6.60
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm3/
> 1000S.: 23.5...24.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 11.0...13.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 1.5...2.5
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2650
Del. quantity cm3/
> 1000S.: 10.00...14.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 200
Del. quantity cm3/: 39.00...41.00
mind> 1000S.: 32.50
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 1.20...2.00

> mm: (0.90...2.30)
electromagnet>Volt: 12
2nd speed 1/min: 1500
TD travel mm: 4.80...5.20
> mm: (4.30...5.70)

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2200
TD travel mm: 7.90...8.70
> mm: (7.60...9.00)

Shutoff
electromagnet>Volt: 12
4th speed 1/min: 2450
TD travel mm: 9.50...10.1
> mm: -

Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure> bar: 4.30...4.90
Shutoff

electromagnet>Volt: 12
2nd speed 1/min: 1500
Supply-pump
pressure> bar: 6.00...6.60
Shutoff

electromagnet>Volt: 12
3rd speed 1/min: 2200
Supply-pump
pressure> bar: 7.80...8.40
Shutoff

electromagnet>Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm³/10s: (26.70...101.10)

2nd speed 1/min: 2450
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

2nd speed 1/min: 2650
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 10.0...14.0
> 1000S.: (8.0...16.0)
3rd speed 1/min: 2580
Shutoff

electromagnet>Volt: 12
Del. quantity cm³/: 17.0...23.0
> 1000S.: (15.0...25.0)
4th speed 1/min: 2450
Shutoff

electromagnet>Volt: 12
Del. quantity cm³/: 25.0...27.0
> 1000S.: (24.8...28.2)
5th speed 1/min: 1500
Shutoff

electromagnet>Volt: 12
Del. quantity cm³/: 23.50...24.50
> 1000S.: (21.80...26.20)
6th speed 1/min: 600
Shutoff

electromagnet>Volt: 12
Del. quantity cm³/: 24.0...27.0
> 1000S.: (22.5...28.5)

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.0...13.0
> 1000S.: (8.0...16.0)

Dispersion cm³/: 2.0
> 1000S.: (3.0)

High Idle:

1st speed 1/mi: 475
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 11.0...13.0
> 1000S.: (8.0...16.0)

Rest delivery:

1st speed 1/min: 500
Shutoff
electromagnet>Volt: 12

Del. quantity cm³/: 1.5...2.5
> 1000S.: (0.0...4.0)

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 14.3...16.3
> 1000S.: (11.3...19.3)

Automatic starting fuel delivery:

1st speed 1/min: 340
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 12.5...32.5
> 1000S.: -

2nd speed 1/min: 250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 35.0...69.0
> 1000S.: -

4th speed 1/min: 200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 39.00...41.00
> 1000S.: (32.5...47.5)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: -
MS	mm: 0.8...1.2
Ya	mm: 32.0...36.0
Yb	mm: 52.9...61.9

Remarks:

:
:
:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 11.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/8F2500R611-2
Type number : 0 460 484 100
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : TUD 5-L3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 0.8
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 4.80...5.20
Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.00...6.60
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm3/
> 1000S.: 23.5...24.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 11.0...13.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 1.5...2.5
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2650
Del. quantity cm3/
> 1000S.: 10.00...14.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 200
Del. quantity cm3/: 39.00...41.00
mind> 1000S.: 32.50
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 1.20...2.00

> mm: (0.90...2.30)
electromagnet>Volt: 12
2nd speed 1/min: 1500
TD travel mm: 4.80...5.20
> mm: (4.30...5.70)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2200
TD travel mm: 7.90...8.70
> mm: (7.60...9.00)
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 2450
TD travel mm: 9.50...10.1
> mm: -
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure> bar: 4.30...4.90
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Supply-pump
pressure> bar: 6.00...6.60
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2200
Supply-pump
pressure> bar: 7.80...8.40
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm³/10s: (26.70...101.10)
2nd speed 1/min: 2450
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)
2nd speed 1/min: 2650
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 10.0...14.0
> 1000s.: (8.0...16.0)
3rd speed 1/min: 2580
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 17.0...23.0
> 1000s.: (15.0...25.0)
4th speed 1/min: 2450
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 25.0...27.0
> 1000s.: (24.8...28.2)
5th speed 1/min: 1500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 23.50...24.50
> 1000s.: (21.80...26.20)
6th speed 1/min: 600
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 24.0...27.0
> 1000s.: (22.5...28.5)

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.0...13.0
> 1000s.: (8.0...16.0)
Dispersion cm³/: 2.0
> 1000s.: (3.0)

High Idle:

1st speed 1/mi: 475
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 11.0...13.0
> 1000s.: (8.0...16.0)

Rest delivery:

1st speed 1/min: 500
Shutoff
electromagnet>Volt: 12

Del. quantity cm³/: 1.5...2.5
> 1000S.: (0.0...4.0)

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 14.3...16.3
> 1000S.: (11.3...19.3)

Automatic starting fuel delivery:

1st speed 1/min: 340
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 12.5...32.5
> 1000S.: -

2nd speed 1/min: 250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 35.0...69.0
> 1000S.: -

4th speed 1/min: 200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 39.00...41.00
> 1000S.: (32.5...47.5)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8
KF mm: -
MS mm: 0.8...1.2
Ya mm: 32.0...36.0
Yb mm: 52.9...61.9

Remarks:

⋮

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 11.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R652
Type number : 0 460 484 103
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : F8Q-646

Power KW: 45

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.50...3.90
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.10...5.70
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 31.0...32.0
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 410
Del. quantity cm3/
> 1000S.: 7.50...11.5
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 2.5...3.5
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
> 1000S.: 21.50...27.50
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.0...60.0
mind> 1000S.: 40.0
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: - 6.5...12.5 *
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: - 0.6...0.8 *
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
TD travel mm: 0.80...1.60
> mm: (0.60...1.80)
electromagnet>Volt: 12
2nd speed 1/min: 1250
TD travel mm: 3.50...3.90
> mm: (3.20...4.20)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
TD travel mm: 5.70...6.50
> mm: (5.50...6.70)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure> bar: 3.30...3.90
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure> bar: 5.10...5.70
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure> bar: 7.20...7.80
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm3/10s: (26.70...101.10)
2nd speed 1/min: 2250
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 0.00...5.00
> 1000s.: (0.00...5.00)
2nd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.5...13.5
> 1000s.: (4.5...14.5)
3rd speed 1/min: 2450
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 21.5...27.5
> 1000s.: (20.5...28.5)
4th speed 1/min: 2250
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 31.1...33.1
> 1000s.: (29.8...34.4)
5th speed 1/min: 2000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 31.50...33.50
> 1000s.: (30.20...34.80)
6th speed 1/min: 1625
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 29.5...32.5
> 1000s.: (28.7...33.3)
8th speed 1/min: 1250
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 31.0...32.0
> 1000s.: (29.2...33.8)
9th speed 1/min: 600
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 30.4...33.4
> 1000s.: (29.6...34.2)

Electr. shutoff:

1st speed 1/min: 410
Del. quantity cm3/: 0.00...3.00
> 1000s.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 410
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 7.50...11.5
> 1000S.: (5.5...13.5)
Dispersion cm³/: 2.5
> 1000S.: (2.5)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 7.0...11.0
> 1000S.: (5.0...13.0)

Rest delivery:

1st speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 1.0...5.0
> 1000S.: (1.0...5.0)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : - 6.0...8.0 #
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: 2.0...8.0 " Z
difference> 1000S.: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: ALFB
Inj.-qty. cm³/: 2.0...8.0 Z
difference> 1000S.: (12 V)
Shutoff
electromagnet>Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : - 1.2...1.6 "
difference> mm: - (1.1...1.7)
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: ALFB
TD-travel : 0.0...0.6
difference> mm: (12 V)
Shutoff
electromagnet>Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-

pressure > : - 0.1...0.3 #
difference> bar: -
Shutoff
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 310
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 25.0...45.0
> 1000S.: -

2nd speed 1/min: 210
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 45.0...75.0
> 1000S.: -

4th speed 1/min: 110
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 40.00...70.00
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.3...5.5
MS mm: 1.1...1.5
XK mm: MAB A= 0,8
XL mm: (MIKRO.)
Ya mm: 30.3...34.3
Yb mm: 64.1...76.9

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 11.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R652-1
Type number : 0 460 484 104
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : F8Q-646

Power KW: 45

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.50...3.90
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.10...5.70
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 31.0...32.0
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 410
Del. quantity cm3/
> 1000S.: 7.50...11.5
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 2.5...3.5
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
> 1000S.: 21.50...27.50
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.0...60.0
mind> 1000S.: 40.0
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: - 6.5...12.5 *
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: - 0.6...0.8 *
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
TD travel mm: 0.80...1.60
> mm: (0.60...1.80)
electromagnet>Volt: 12
2nd speed 1/min: 1250
TD travel mm: 3.50...3.90
> mm: (3.20...4.20)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
TD travel mm: 5.70...6.50
> mm: (5.50...6.70)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure> bar: 3.30...3.90
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure> bar: 5.10...5.70
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure> bar: 7.20...7.80
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm³/10s: (26.70...101.10)
2nd speed 1/min: 2250
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...5.00
> 1000s.: (0.00...5.00)
2nd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5...13.5
> 1000s.: (4.5...14.5)
3rd speed 1/min: 2450
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 21.5...27.5
> 1000s.: (20.5...28.5)
4th speed 1/min: 2250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 31.1...33.1
> 1000s.: (29.8...34.4)
5th speed 1/min: 2000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 31.50...33.50
> 1000s.: (30.20...34.80)
6th speed 1/min: 1625
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 29.5...32.5
> 1000s.: (28.7...33.3)
8th speed 1/min: 1250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 31.0...32.0
> 1000s.: (29.2...33.8)
9th speed 1/min: 600
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 30.4...33.4
> 1000s.: (29.6...34.2)

Electr. shutoff:

1st speed 1/min: 410
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 410
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 7.50...11.5
> 1000S.: (5.5...13.5)
Dispersion cm³/: 2.5
> 1000S.: (2.5)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 7.0...11.0
> 1000S.: (5.0...13.0)

Rest delivery:

1st speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 1.0...5.0
> 1000S.: (1.0...5.0)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : - 6.0...8.0 #
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: 2.0...8.0 " Z
difference> 1000S.: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: ALFB
Inj.-qty. cm³/: 2.0...8.0 Z
difference> 1000S.: (12 V)
Shutoff
electromagnet>Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : - 1.2...1.6 "
difference> mm: - (1.1...1.7)
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: ALFB
TD-travel : 0.0...0.6
difference> mm: (12 V)
Shutoff
electromagnet>Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-

pressure > : - 0.1...0.3 #
difference> bar: -
Shutoff
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 310
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 25.0...45.0
> 1000S.: -

2nd speed 1/min: 210
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 45.0...75.0
> 1000S.: -

4th speed 1/min: 110
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 40.00...70.00
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.3...5.5
MS mm: 1.1...1.5
XK mm: MA β A= 0,8
XL mm: (MIKRO.)
Ya mm: 30.3...34.3
Yb mm: 64.1...76.9

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 s.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
Edition : 15.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2400R677
Type number : 0 460 484 108
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1.6 L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 000

Opening
Pressure> bar: 144.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 3.40...3.80
AFB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.30...6.90
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm³/
> 1000s.: 31.5...32.5
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Dispersion cm³/: 2.5
> 1000s.: (3.0)

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Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm³/
> 1000s.: 13.0...17.0
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 2.5
> 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 2550
Del. quantity cm³/
> 1000s.: 16.0...22.0
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 31.5...61.5
mind> 1000s.: 31.5
KSB/AFB
Valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
TD travel mm: 1.20...2.40

> mm: (0.80...2.80)
 KSB/AFB
 valve > Volt: -
 electromagnet>Volt: 12
 2nd speed 1/min: 1000
 TD travel mm: 1.40...2.20
 > mm: (1.10...2.50)
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1500
 TD travel mm: 3.40...3.80
 > mm: (3.00...4.20)
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 2400
 TD travel mm: 6.2...7.0
 > mm: (5.9...7.3)
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Supply-pump
 pressure> bar: 3.60...4.20
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1500
 Supply-pump
 pressure> bar: 6.30...6.90
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 2400
 Supply-pump
 pressure> bar: 9.00...9.60
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 600
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 Overflow : 44.40...88.80
 quantity> cm3/10s: (29.40...103.80)
 2nd speed 1/min: 2400

KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 Overflow : 55.60...139.00
 quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 2nd speed 1/min: 2650
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 4.0...12.0
 > 1000S.: (3.0...13.0)
 3rd speed 1/min: 2550
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 17.0...23.0
 > 1000S.: (16.0...24.0)
 4th speed 1/min: 2400
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 28.0...30.0
 > 1000S.: (27.0...31.0)
 5th speed 1/min: 1500
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 31.50...32.50
 > 1000S.: (30.0...34.0)
 6th speed 1/min: 600
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 24.0...27.0
 > 1000S.: (22.5...28.5)

Electr. shutoff:

1st speed 1/min: 475
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -
KSB/AFB
valve > Volt: 12

Idle delivery:

1st speed 1/min: 400
>KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 13.0...17.0
> 1000S.: (9.5...20.5)
Dispersion cm³/: 2.5
> 1000S.: (3.5)
2nd speed 1/min: 300
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 24.0...30.0
> 1000S.: (21.5...32.5)
3rd speed 1/min: 1000
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.0...3.0
> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 350
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 32.0...42.0
> 1000S.: -
2nd speed 1/min: 500
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 19.5...29.5
> 1000S.: -
4th speed 1/min: 100
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 32.50...62.50
> 1000S.: -

Shutoff electromagnet:

Cut-in

N08

>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS	mm: 1.6...2.0
Ya	mm: 39.4...41.4
Yb	mm: 45.8...58.7

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 11.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/8F2500R425-13
Type number : 0 460 484 109
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD9 A L3

Power KW: 51

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 0.3
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

N09

Setting value mm: 3.30...3.70
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.70...6.30
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000s.: 29.7...30.7
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
> 1000s.: 12.0...14.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.0
> 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
> 1000s.: 4.5...5.5
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2650
Del. quantity cm3/
> 1000s.: 9.00...13.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 46.00...48.00
mind> 1000s.: 39.50
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/

difference> 1000S.: -4.0...10.0 *
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: - 0.9...1.1 *
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 0.40...1.20
> mm: (0.10...1.50)
electromagnet>Volt: 12
2nd speed 1/min: 1250
TD travel mm: 3.30...3.70
> mm: (2.80...4.20)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
TD travel mm: 7.20...8.00
> mm: (6.90...8.30)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure> bar: 3.30...3.90
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure> bar: 5.70...6.30
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2200
Supply-pump
pressure> bar: 8.20...8.80
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm3/10s: (26.70...101.10)
2nd speed 1/min: 2200
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00

quantity> cm3/10s: (40.60...154.00)
Delivery-quant. and breakaway char.:

1st speed 1/min: 2900
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
2nd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 9.0...13.0
> 1000S.: (7.0...15.0)
3rd speed 1/min: 2500
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 19.5...25.5
> 1000S.: (17.5...27.5)
4th speed 1/min: 2200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 32.0...34.0
> 1000S.: (30.8...35.2)
5th speed 1/min: 1250
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 29.70...30.70
> 1000S.: (28.00...32.40)
6th speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 29.8...32.8
> 1000S.: (28.3...34.3)

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 12.0...14.0
> 1000S.: (9.0...17.0)
Dispersion cm3/: 2.0
> 1000S.: (3.0)

High Idle:

1st speed 1/mi: 475
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 8.50...10.5
> 1000S.: (5.5...13.5)

Rest delivery:

1st speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 4.5...5.5
> 1000S.: (3.0...7.0)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm3/ : - 5.0...7.0 #
difference> 1000S.: - (4.0...10.0)
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm3/: 2.0...8.0 " Z
difference> 1000S.: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: ALFB
Inj.-qty. cm3/: 2.0...8.0 Z
difference> 1000S.: (12 V)
Shutoff
electromagnet>Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -2.7...3.7 "
difference> mm: -(2.6...3.8) "
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: ALFB
TD-travel : 0.0...0.6
difference> mm: (12 V)

SP press.-dif.measurement:

pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure > : - 0.1...0.3 #
difference> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Supply pump-
pressure > : -1.2...1.8 "
difference> bar: -(1.1...1.9) "

Shutoff

electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 20.4...22.4
> 1000S.: (17.4...25.4)

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 20.0...40.0
> 1000S.: -

2nd speed 1/min: 225
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 37.0...71.0
> 1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 46.00...48.00
> 1000S.: (39.5...54.5)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: -
MS mm: 1.3...1.5
XK mm: MIKRO.
XL mm: MASS A=0.8
Ya mm: 27.8...31.8
Yb mm: 74.0...85.0

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control

lever on drive end

Y_b = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 11.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2100R679
Type number : 0 460 434 112
Customer Part-No. :

Customer-specific information
Customer : FIAT

Engine : X8/96 M720 DT

Power KW: 54

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 5.70...6.10
AFB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 7.00...7.60
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Del. quantity cm3/
> 1000S.: 43.30...44.30

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
> 1000S.: 12.3...16.3

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm3/
> 1000S.: 28.20...34.20

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...80.00
mind> 1000S.: 50.00

KSB/AFB
Valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference> 1000S.: 11.0...17.0 *
KSB/AFB
valve > Volt: 12
Shutoff

electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1500
TD-travel
difference> mm: 0.70...0.90
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
TD travel mm: 2.40...4.40 B
> mm: (1.90...4.90)
KSB/AFB
valve > Volt: -
electromagnet>Volt: 12
2nd speed 1/min: 300
TD travel mm: 2.00...2.60 A
> mm: (1.70...2.90)

KSB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 600
TD travel mm: 3.40...4.40
> mm: (1.90...4.90)

KSB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1000
TD travel mm: 2.90...3.70
> mm: (2.60...4.00)

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
5th speed 1/min: 1500
TD travel mm: 5.70...6.10
> mm: (5.30...6.50)

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
6th speed 1/min: 2100
TD travel mm: 8.50...9.30
> mm: (8.20...9.60)

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1500
Supply-pump
pressure> bar: 7.00...7.60
KSB/AFB
valve > Volt: 12

Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1000
Supply-pump
pressure> bar: 5.60...6.20
KSB/AFB
valve > Volt: 12

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2100
Supply-pump
pressure> bar: 8.50...9.10
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm³/10s: (26.70...101.10)
2nd speed 1/min: 2100
KSB/AFB

valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2800
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

2nd speed 1/min: 2600
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.40...17.4
> 1000S.: (8.40...18.4)

3rd speed 1/min: 2400
KSB/AFB
valve > Volt: 12
Shutoff

```

electromagnet>Volt: 12
Del. quantity cm3/: 28.2...34.2
> 1000S.: (26.2...36.2)
4th speed 1/min: 2100
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 42.1...45.1
> 1000S.: (41.3...45.9)
5th speed 1/min: 1500
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 43.30...44.20
> 1000S.: (41.80...45.80)
6th speed 1/min: 1000
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 41.1...44.1
> 1000S.: (40.3...44.9)
7th speed 1/min: 600
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 40.1...43.1
> 1000S.: (39.3...43.9)

```

Electr. shutoff:

```

1st speed 1/min: 425
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -
KSB/AFB
valve > Volt: 12

```

Idle delivery:

```

1st speed 1/min: 425
>KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 12.3...16.3
> 1000S.: (10.3...18.3)
Dispersion cm3/: 2.5
> 1000S.: (2.5)
2nd speed 1/min: 500
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

```

```

Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
3rd speed 1/min: 300
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 42.0...47.0
> 1000S.: (40.0...49.0)

```

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

```

1st speed 1/min: 1500
Inj.-qty. cm3/ : 9.0...11.0 "
difference> 1000S.: -
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Inj.-qty. cm3/: 2.0...8.0 # Z
difference> 1000S.: (1.00...9.00)
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet Volt: 12

```

TD-travel dif.measurement:

```

correttore anticipo iniezione (SV):
1st speed 1/min: 1500
TD-travel : 0.50...0.90 #
difference> mm: (0.30...1.10)
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

```

SP press.-dif.measurement:

```

pompa di mandata (FP):
1st speed 1/min: 1500
Supply pump-
pressure > : 0.10...0.30 "
difference> bar: (0.10...0.30)
Shutoff
electromagnet>Volt: 12

```

Part-load del.at 3rd inj.-qty.

```

terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

```

```

1st speed 1/min: 1000
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 7.80...9.80

```

> 1000s.: (6.3...11.3)

Automatic starting fuel delivery:

1st speed 1/min: 525
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 35.00...55.00
> 1000s.: -

2nd speed 1/min: 400
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 52.00...72.00
> 1000s.: -

4th speed 1/min: 100
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 50.00...80.00
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: 4.8...5.0
MS	mm: 1.1...1.5
Ya	mm: 36.0...38.0
Yb	mm: 63.4...71.4

Ajustement Potentiometer:

Angle for
pot. > °: 25.0
Supply voltage
pot. > volt: 5.0
Output volt
pot. > volt: 2.04

Remarks:

⋮

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 08.12.92
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE4/9F2200R153-2
Type number : 0 460 494 303

Customer-specific information
Customer : RNUR

Engine : J8S - 738

TEST BENCH REQUIREMENTS

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Charge press. hPa: 800
Setting value mm: 4.00...4.40
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1400
Charge press hPa: 800

Setting value bar: 5.10...5.70
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400
Charge press. hPa: 800
Del. quantity cm3/
> 1000S.: 47.00...48.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2,5
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
> 1000S.: 37.00...38.00
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
> 1000S.: 7.00...11.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.5
> 1000S.: (3,5)

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 800
Del. quantity cm3/
> 1000S.: 23.00...29.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: -
mind> 1000S.: 60.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2000
Charge press hPa: 800
TD travel mm: 6.20...7.00
> mm: -
electromagnet>Volt: 12

2nd speed 1/min: 1400
 Charge press hPa: 800
 TD travel mm: 4.00...4.40
 > mm: (3.50...4.90)
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1000
 Charge press hPa: 800
 TD travel mm: 1.90...2.70
 > mm: (1.60...3.00)
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 1800
 Charge press hPa: 800
 TD travel mm: 5.70...6.50
 > mm: (5.40...6.80)
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2000
 Charge press. hPa: 800
 Supply-pump pressure> bar: 6.90...7.50
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1400
 Charge press. hPa: 800
 Supply-pump pressure> bar: 5.10...5.70
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 600
 Charge press. hPa: 800
 Supply-pump pressure> bar: 2.70...3.20
 Shutoff
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12
 Overflow : 41.6...83.3
 quantity> cm3/10s: (26.6...98.3)
 2nd speed 1/min: 2000
 Charge press. hPa: 800
 Shutoff
 electromagnet>Volt: 12
 Overflow : 55.5...138.8
 quantity> cm3/10s: (40.5...154.8)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
 Charge-air pressure-setting

point> hPa: 200
 LDA-stroke mm: 4.5
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 41.00...42.00
 > 1000S.: (38.50...44.50)
 2nd speed 1/min: 2700
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 3rd speed 1/min: 2500
 Charge press. hPa: 800
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 2.50...17.50
 > 1000S.: -
 4th speed 1/min: 2400
 Charge press. hPa: 800
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 23.00...29.00
 > 1000S.: (22.00...30.00)
 5th speed 1/min: 2000
 Charge press. hPa: 800
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 43.40...45.40
 > 1000S.: (42.10...46.70)
 6th speed 1/min: 1400
 Charge press. hPa: 800
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 47.00...48.00
 > 1000S.: (45.20...49.80)
 7th speed 1/min: 1000
 Charge press. hPa: 800
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 44.90...47.90
 > 1000S.: (43.40...49.40)
 8th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 37.00...38.00
 > 1000S.: (34.50...40.50)

Electr. shutoff:

1st speed 1/min: 425
 Charge press. hPa: -
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 Shutoff
 electromagnet>volt: 12

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 7.00...11.00
> 1000s.: (5.00...13.00)
2nd speed 1/min: 660
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000s.: -
3rd speed 1/min: 520
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 3.00...7.00
> 1000s.: (1.00...9.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 20.00...40.00
> 1000s.: -
2nd speed 1/min: 180
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 40.00...100.00
> 1000s.: -
3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 60.00...100.00
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.6...6.0
MS	mm: 1.3...1.7
SVS max.	mm: 3.6
LDA stroke	mm: 4.5
XK	mm: 17.0...19.0
XL	mm: 10.3...13.7

Remarks:

* Correction at adjusting nut

Operate control lever after each

manifold-pressure compensator pressure change.